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EXPERIMENTAL TUNA PURSE SEINING IN THE CENTRAL PACIFIC

By Garth I. Murphy* and Edwin L. Niska**

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INTRODUCTION

The general scarcity of live bait in the central Pacific limits live-bait fishing for the available stocks of surface tuna and makes it desirable to develop some alternate method of capture. Attempts to gill net skipjack in the Hawaiian Islands where there is a commercial live-bait fishery have met with little success (Matsumoto 1953). Purse-seine fishing, which accounts for about 12 percent of the California landings of tuna (Godsil 1949, page 17), was tried intensively by the Pacific Oceanic Fishery Investigations of the U. S. Fish and Wildlife Service during the period April 12, 1950, to September 15, 1951. These trials centered around the Phoenix, Line, and Hawaiian Islands (fig. 1, table 1) where surface schools of tuna are commonly found.

DESCRIPTION OF GEAR

The John R. Manning, a West Coast-type purse seiner, was used for all purse seining (fig. 2). The vessel's essential characteristics are:

Length	- 86 feet 6 inches	Beam	- 22 feet 6 inches
Depth	- 12 feet 8 inches	Cruising speed	- 7-3/4 knots
Displacement	- 237 tons		

Three purse seines were used during the John R. Manning's operations. Seine No. 1, a standard West Coast tuna net made of cotton thread in San Diego, Calif., was 360 fathoms long with a lead line measuring 340 fathoms. It had a depth of approximately 31 fathoms. The main body consisted of five strips of No. 48-thread 4 $\frac{1}{2}$ -inch mesh, each 100 meshes deep. The lead-line strip was No. 84-thread 7-inch mesh, 50 meshes deep, and the selvage strip was No. 84-thread 4 $\frac{1}{2}$ -inch mesh, 20

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meshes deep. The lead line was weighted with 32 4-ounce leads per fathom. The cork line contained 20 corks per fathom in the main body. This net was fished during Cruises 1 through 4, April 1950 through December 1950.

After tuna escaped repeatedly, tests showed that the lead line dropped slowly and reached a depth of only 20 fathoms. It was deemed advisable to construct the seine deeper and adjust it to sink more rapidly. Consequently, seine No. 1 was

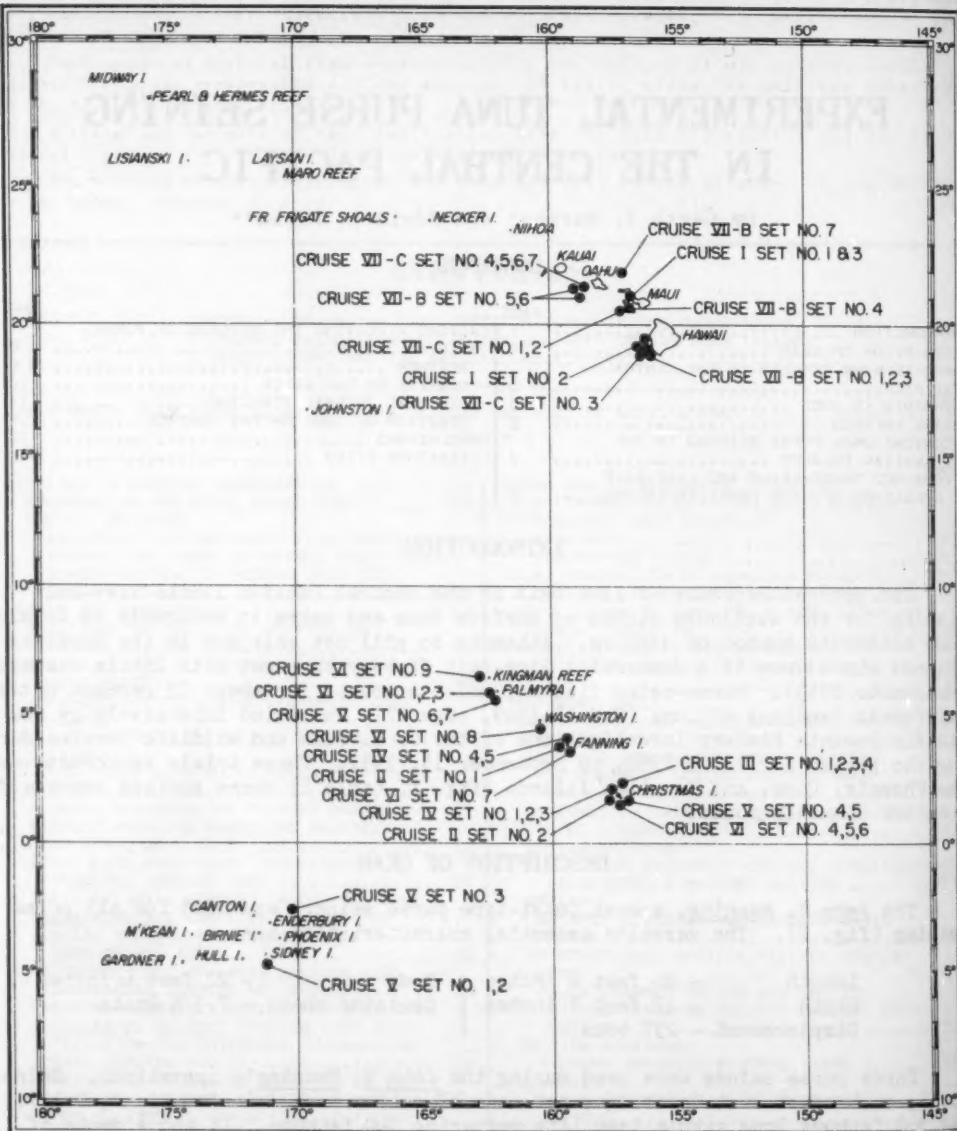


FIG. 1 - THE CENTRAL PACIFIC AREA SHOWING LOCATION OF PURSE-SEINE SETS.

modified by removing one strip of No. 48-thread 4½-inch mesh cotton adjoining the 7-inch heavy mesh lead-line strip and substituting two strips, each 100 meshes deep, of No. 40/16 cabled linen thread, 4½-inch mesh. The theoretical depth of this seine was thereby increased to approximately 36 fathoms. However, drop tests indicated that the modified net reached a maximum depth of only 30 fathoms so the weight on the lead line was increased to 10½ pounds or 42 4-ounce leads per fathom. The first 50 fathoms of the seine to leave the vessel--the bow end of the net--had 44 leads per fathom for faster sinking. This seine was used on cruises 5 through 7-A during the period January 1951 through June 1951.

The third and final seine to be used was constructed of boiled linen netting (fig. 3). It was 400 fathoms long with a maximum fishing depth of 39 fathoms (46.7 fathoms stretched mesh). The lead line measured 381 fathoms. The main body of this seine was 7 strips, each 100 meshes deep, of No. 40/16 cabled linen thread 4½-inch mesh. The lead-line strip, 50 meshes deep, was made of No. 6.5/12 cabled linen thread 7-inch mesh. The selvage strip was No. 60 medium-lay cotton thread 4½-inch mesh, 8 meshes deep. The web was hung in the ratio of 10 fathoms of cork

Table 1 - Purse-seining Cruises of the John R. Manning

Cruise	Dates	Area
2	4/17-6/14/50	Line Islands
3	7/15-10/2/50	Line & Phoenix Is.
4	10/26-12/6/50	Line Islands
5	1/11-3/2/51	Line & Phoenix Is.
6	3/30-5/17/51	Line Islands
7-A	6/5-6/18/51	Hawaiian Islands
7-B	7/21-8/15/51	Hawaiian Islands
7-C	8/21-9/8/51	Hawaiian Islands

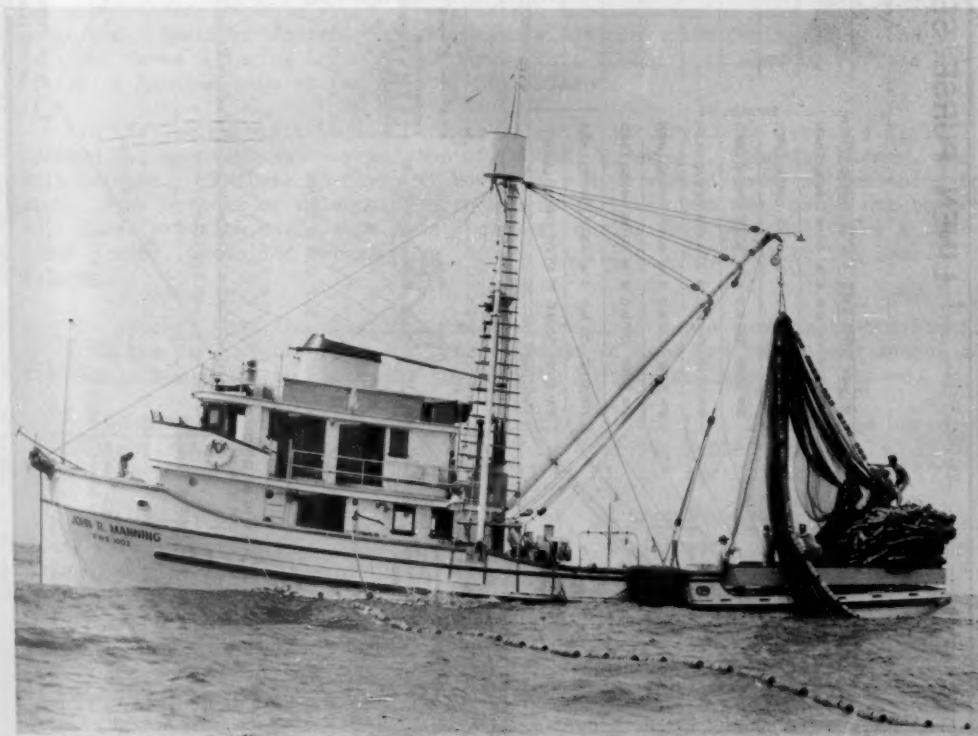


FIG. 2 - THE JOHN R. MANNING, EXPERIMENTAL PURSE SEINER OF THE PACIFIC OCEANIC FISHERY INVESTIGATIONS.

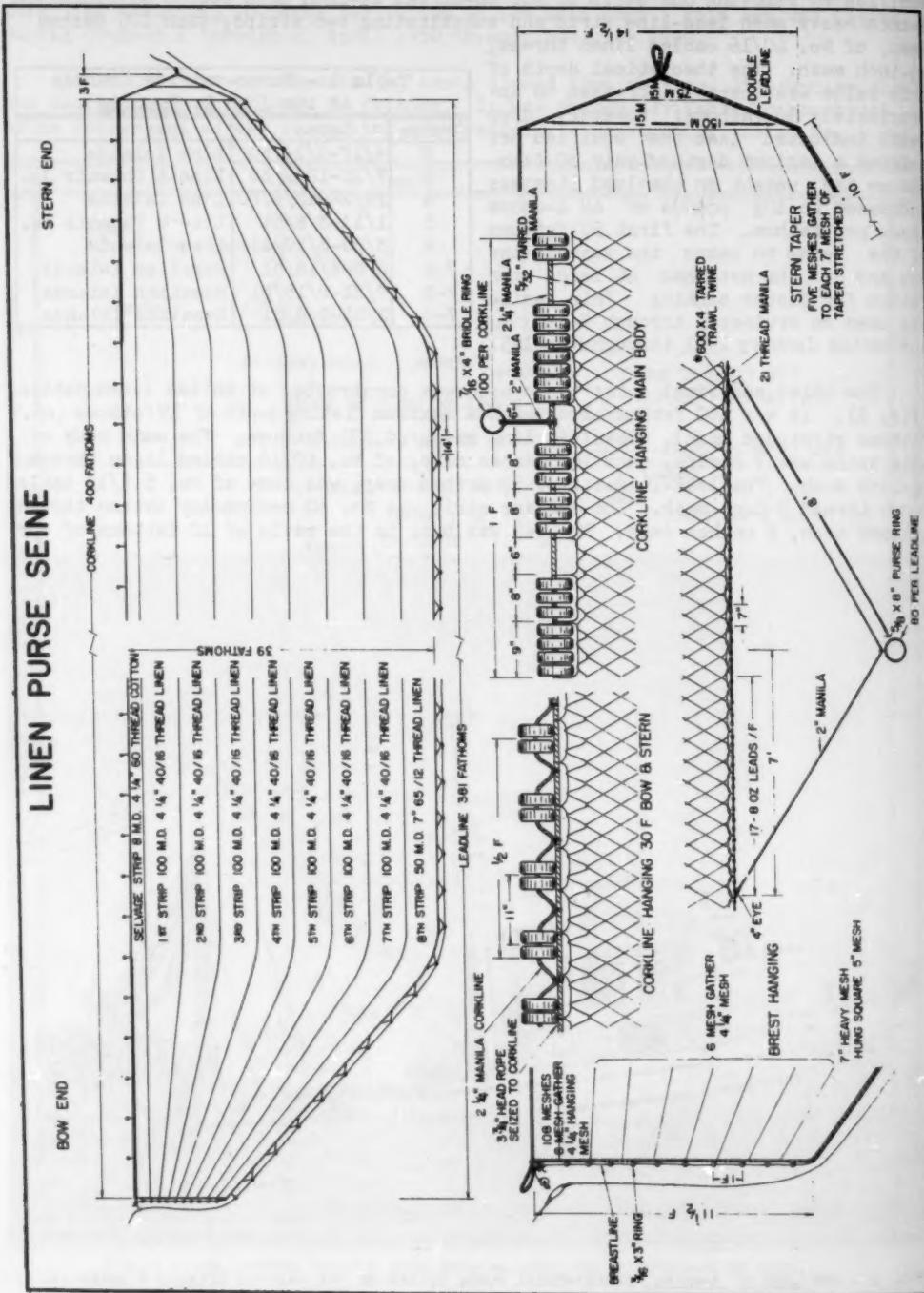


FIG. 3 - DIAGRAM OF THE LINEN PURSE SEINE USED BY THE PACIFIC OCEANIC FISHERY INVESTIGATIONS.

line to 9½ fathoms of lead line, with the exception of the stern 10 fathoms of the seine which were hung in a 10:10 ratio. Nine extra meshes per 10 fathoms of netting were allowed as slack on the cork line.

The cork line of the linen seine contained 22 6-inch diameter cork per fathom in the main body of the net. At each extremity of the seine there were 14 corks per fathom for a distance of 30 fathoms. The lead line was weighted with 17 8-ounce leads per fathom throughout. For ten fathoms on each end, the lead line was reinforced with 21-thread manila rope. The taper on the towing end of the linen seine was made in the form of a 45° angle and differed from that in the cotton seine which was in the form of a 25° angle. The breast-line hanging was essentially the same as for the cotton seine. This linen seine¹ was fished only during the final stages of the purse-seine program in the Hawaiian Islands area (July-August 1951).

PURSE-SEINING RESULTS IN THE CENTRAL PACIFIC

PHOENIX ISLANDS: The John R. Manning visited the Phoenix Islands on two occasions. During the first period, July 24 to September 1, 1950 (Cruise 3), parts of 16 days were devoted to scouting for tuna. This activity centered around the islands of Canton, Birnie, Sidney, Phoenix, Enderbury, McKean, Gardner, and Hull, and Caronedelet Reef. During the 64 hours of actual scouting, 11 schools of tuna were sighted--4 of shipjack, 2 of yellowfin, and 5 unidentified. These schools either outran the vessel or were too close to coral reefs to permit setting the net without considerable risk. The greatest handicap during this period was the rough sea. Beaufort force² 5 or stronger winds prevailed during 18 of the 40 days and force 4 during 4 of the 40 days. This either precluded operations entirely or limited them to the lees of the islands.

In the second visit to the Phoenix Islands, January 24 to February 5, 1951 (Cruise 5), scouting was carried out at Canton, Enderbury, Phoenix, Sidney, and Hull Islands. In these 13 days, 29 hours of 9 days were devoted to searching for tuna. Four schools of unidentified tuna were sighted, but they could not be set on. Three practice hauls were made, however, during this period. Force 4 and force 5 winds prevailed through the period, limiting operations to the lees of the islands.

It appears that the prevailing high winds limit purse seining in the Phoenix group to the lees of the islands. Here schools of tuna are relatively scarce and frequently too close to the reefs for sets to be made without great hazard.

LINE ISLANDS: The purse-seining potential of the Line Islands was surveyed on five separate occasions: April 22 to June 7, 1950; September 2 to 19, 1950; November 1 to December 1, 1950; February 11 to 23, and April 5 to May 12, 1951.

From April 22 to June 7, 1950 (Cruise 2), waters adjoining the following islands were investigated: Kingman Reef, Palmyra, Washington, and Fanning. During this 47-day period, parts of 38 days--a total of 310 hours--were devoted to actual scouting for tuna. Twenty-eight schools of tuna were sighted, including 12 of yellowfin, 8 of skipjack, 5 unidentified, and 3 of mixed species. Two sets were made. On May 8, 1950, a set on a school of yellowfin off Fanning Island was un-

¹THE LINEN SEINE WAS DIFFICULT TO USE BECAUSE SKIPJACK HAD A TENDENCY TO CATCH ON THE ROUGH LINEN THREAD (FIG. 4), NECESSITATING INDIVIDUAL HANDLING OF A LARGE PORTION OF THE CATCH. SOME OF THE SKIPJACK RAISED WITH THE NET CREATED A WORKING HAZARD WHEN THEY FELL ON DECK, AND IN SO DOING FREQUENTLY BROKE THE RELATIVELY SMALL-DIAMETER LINEN TWINE. THESE PROBLEMS MIGHT HAVE BEEN LESS SERIOUS IF THE LINEN HAD BEEN TARRED, MATTING DOWN THE LOOSE FIBERS.

²BEAUFORT FORCE IS THE STANDARD MARINE EXPRESSION OF WIND VELOCITY. FORCE 1 IS 1 TO 3 KNOTS; FORCE 2 IS 4 TO 6 KNOTS; FORCE 3 IS 7 TO 10 KNOTS; FORCE 4 IS 11 TO 16 KNOTS; FORCE 5 IS 17 TO 21 KNOTS, ETC.

successful. The second set was made off Christmas Island on May 13, 1950, on a mixed school of yellowfin and skipjack and was also unsuccessful, although fish were in the net when pursing began.

Throughout this period (April 22-June 7, 1950) the weather was generally favorable. No winds over force 4 were encountered. Chiefly force 3 and lesser winds prevailed with force 4 winds encountered only for five days.

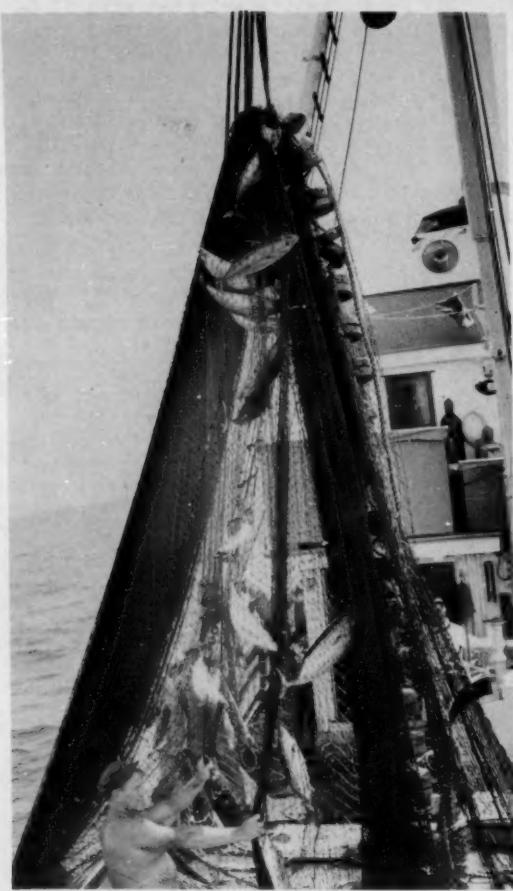


FIG. 4 - SKIPJACK CAUGHT IN THE LINEN SEINE.
AUGUST 23, 1951.

at Fanning Island on a school of yellowfin. During the set the fish sounded and escaped after pursing began. Four practice sets were made in the area.

High winds were a considerable handicap largely limiting operations to the lees of the islands. For 18 days force 5 or stronger winds prevailed; force 4 winds blew on 4 days; and lesser winds blew for 9 days.

The waters off the islands of Jarvis, Christmas, Fanning, Washington, Palmyra, and Kingman Reef were prospected February 11 to 23, 1951 (Cruise 5). During 104 hours of actual scouting, only 1 school of yellowfin, 2 of skipjack, and 2 of mixed yellowfin and skipjack were seen. Only one was large, and it could not be set on

During the period September 2-19, 1950 (Cruise 3), the following islands were scouted: Jarvis, Christmas, Palmyra, and Kingman Reef. Scouting for tuna was done during 85 hours of 9 days. Sighted were 8 schools of yellowfin and 6 schools of unidentified tuna. One set was made off Christmas Island on September 9 on "breezing" tuna, but no fish were captured. Another set was made on September 10 under bird signs, and again no fish were taken. Sets were also made on September 11 and on September 12 off Christmas Island. Both of these were on yellowfin tuna and on both sets fish were still inside the net when pursing commenced, but they apparently sounded out of the net.

During this 18-day period, Beaufort force 5 winds prevailed on 4 days, force 4 on 5 days, and force 3 or less prevailed for the balance.

The John R. Manning scouted areas near Kingman Reef, Christmas, Fanning, Washington, and Palmyra islands from November 1 to December 1, 1950 (Cruise 4). During 226 hours of actual scouting distributed over 18 days, 9 schools of yellowfin tuna, 7 schools of skipjack, and 6 schools of unidentified tuna were sighted. Although most of these schools were either too close to the reefs or too elusive to permit a set, one unsuccessful attempt was made

because of the proximity of the Fanning Island reef. The other schools were very small and outran the vessel. Four sets were made on this cruise, two for practice and two on milkfish (Chanos chanos). The latter two were unsuccessful.

For 6 days of the period, force 5 winds prevailed, for 5 days force 4, and for only 2 days force 3. These winds, of course, limited operations to the lees of the islands.

The final attempt at purse seining in the Line Islands (Cruise 6) was made April 5 to May 12, 1951, when waters in the vicinity of Kingman Reef, Palmyra, Fanning, Christmas, and Washington islands were explored. Parts of 28 days--208 hours--were devoted to scouting for fish. Schools sighted were 2 of yellowfin, 2 of skipjack, and 2 of unidentified tuna. Five practice sets were made--2 on visible fish, 1 under bird signs, 1 on porpoises, and 1 on fathometer indications. No fish were taken, but fish were still in the net as pursing began on the May 1 set on yellowfin off Christmas Island and the May 5 set on unidentified tuna. Evidently these fish sounded.

During this survey, force 5 or stronger winds blew on 19 days, force 4 winds blew on 7 days, and lesser winds blew on 13 days.

In summary, 5 trips distributed over one 12-month period were made to these islands (fig. 1). During these trips, 933 hours were devoted to scouting fortuna. Strong winds frequently limited operations to the small lees of the individual islands. Sighted were 75 schools of tuna, but either because of the wildness of the fish or the proximity of reefs, it was possible to set on only 8 of them. On six of these sets fish were in the circle as pursing began, but sounded out before pursing was completed. Tuna purse seining in the Line Islands, therefore, appears to be a problematical venture.

CONVENTIONAL PURSE SEINING IN THE HAWAIIAN ISLANDS: The initial survey of the Hawaiian Islands area was undertaken June 5 to June 18, 1951. During 122 hours of actual scouting, 6 schools of skipjack were located, but because of their speed and erratic behavior the John R. Manning was able to approach only one and this was not set on.

More extensive trials were made from July 21 to August 15, 1951. During this and subsequent cruises the linen seine was substituted for the cotton net used previously. In order to insure maximum efficiency in handling the gear, the captain, a skilled California purse-seine fisherman, was engaged for this and the subsequent tests. A total of 213 hours distributed over 23 days was devoted to scouting for tuna. This activity occurred in the lees of Hawaii, Maui, Lanai, Oahu, and Kauai, with the exception of August 14-15 when weather conditions permitted scouting off the windward (NE.) side of Oahu. Sixty schools of tuna were sighted on this cruise, and with the exception of 4 schools of yellowfin sighted off the lee of Hawaii, all were identified as skipjack. The localities of these schools are given in table 2.

Table 2 - Tuna Schools Sighted from the John R. Manning in the Hawaiian Islands Area, 1951

Locality	Number of Schools	Date
Lee of Hawaii	29	July 22-26
Lee of Lanai	17	July 30-Aug. 1
Lee of Oahu	7	August 5
Lee of Kauai	4	August 6-7
Lee of Oahu	2	August 9-13
52 mi. NE. Oahu	11	August 14-15

The behavior of the schools was very erratic so that even though a serious attempt was made to set on 57 of them, it was possible to "shoot" the net on only 7 schools--1 of yellowfin tuna and 6 of skipjack. Some of the 57 schools sounded on approach, some changed course so frequently it was impossible to maneuver into a setting position, some

schools scattered on approach, and some merely outran the vessel. The most pertinent data on the seven sets made in Hawaiian waters are given in table 3.

COMBINED PURSE-SEINE AND LIVE-BAIT OPERATION OFF THE HAWAIIAN ISLANDS: A cruise to test the feasibility of seining Hawaiian tuna in cooperation with a live-bait boat was made August 21 to September 8, 1951. A small Honolulu sampan, the Momi, was engaged as a chum boat. Seven days were devoted to catching bait, 6 to fishing for tuna, and 5 to travel between baiting and fishing localities.

The fishing procedure followed a regular pattern. After locating a school, the Momi attempted to concentrate the fish with chum. If this was successful, her speed was reduced so that a set could be made by the John R. Manning.

(According to Hawaiian fishermen the local skipjack will disperse despite the throwing of chum unless a speed of approximately 2 knots is maintained.) When the captain of the John R. Manning of the Momi con-

Table 3 - Results of Conventional Purse-Seine Sets on Tuna in Hawaiian Waters, 1951

Set Number	Date	Location	Behavior of Fish
1	July 23	Lee of Hawaii	Unknown.
2	July 23	Lee of Hawaii	Sounded out of net.
3	July 24	Lee of Hawaii	Probably sounded out of net.
4	July 30	Lee of Lanai	Followed forage out of net before circle closed.
5	August 5	Lee of Oahu	Some swam out on surface before net closed. Others sounded.
6	August 10	Lee of Oahu	Probably sounded.
7	August 14	NE. of Oahu	Probably sounded.

considered that the school was concentrated and holding, he signalled the John R. Manning to set. The set was started at the earliest moment the vessel could maneuver into a proper downwind position from the Momi. During the course of the set the Momi cruised in a circle inside the seine, chumming continuously. When the net was pursed, the Momi ceased chumming, gunned her engine, then cut it off and coasted over the cork line. The rest of the operation constituted a normal purse. Eleven schools of skipjack were located during the fishing. One of these was abandoned because of rough seas, 3 did not respond to the chum, and 7 were set on.

The results of the 7 sets are given in table 4. The amounts of bait shown in the table are the actual catches less the estimated amounts lost between capture and utilization. Losses were inordinately high, chiefly because time could not be spared to rest the bait after capture. It is evident from table 4 that the chumming rate varied considerably. This came about because the chief aim was to investigate the general method, not to work out minimum chumming rates, and consequently no effort was made to economize on bait. Also there was a distinct tendency on the part of the fishermen to chum more heavily when ample bait was in the wells.

The catch for the successful sets, with the exception of the fourth and sixth, represents the entire school. On the fourth the Momi appeared to have held only part of the school. The school for the sixth set was completely chummed, but a large segment of the school disengaged and sounded before the net could be pursed. A number of controllable factors contributed to this: (1) there was too long a period between chumming the school and pursing the net; (2) too much tow line was let out, thus increasing the pursing time; (3) the wilder iao (Pranesus insularum) were used as chum instead of the nehu (Stolephorus purpureus) normally used. This latter species, in contrast to the iao, remains very close to the boat after being thrown in the water.

It appears that by skillful handling of both the chum boat and purse seiner entire schools of Hawaiian skipjack can be captured. With our present information it is not possible to state whether this type of fishing is economically feasible.

Table 4 - Purse Seine-Chum Boat Sets, Hawaiian Waters, 1951

Set Number	Date	Skipjack Caught (In Pounds)			Buckets ² of Bait Used	Buckets of Bait Per Ton of Catch	Notes
		Manning ¹	Momi ¹	Total			
1	Aug. 23	1,125	700	1,825	36	24	Entire school taken.
2	Aug. 23	810	500	1,310			
3	Aug. 26	0	0	0	10	-	Momi fouled cork line before pursing was well started and had to stop chumming. School sounded out of net.
4	Aug. 29	7,490	500	8,440	9	2	Only part of school responded to chum.
5	Sept. 2	6	0	6	7	-	Fish ceased responding to chum and sounded out of net.
6	Sept. 6	2,500	1,400	3,900	21	11	Part of school taken.
7	Sept. 8	900	700	1,600	9	6	-
Total		13,281	3,800	17,081	82 ³	104 ⁴	

¹THE POUNDAGE OF THE CATCH ON THE JOHN R. MANNING AND THE MOMI WAS ESTIMATED BY MULTIPLYING THE NUMBER OF FISH BY THE MEAN WEIGHT OF THE INDIVIDUAL SKIPJACK. ACCURATE COUNTS WERE NOT OBTAINED FOR THE MOMI CATCH ON SETS 1, 2, AND 4, NOR FOR THE JOHN R. MANNING ON SET 6. THE MOMI CATCH WAS MADE BY FISHERMEN WITH JIGS WHILE CHUMMING THE SCHOOL.

²ONE BUCKET OF BAIT IS ROUGHLY 10 POUNDS.

³BAIT USED ON SET 3 IS NOT INCLUDED.

⁴IN 1948 THE HAWAIIAN FLEET AVERAGED 14 BUCKETS OF BAIT PER TON OF FISH LANDED.

In order for the operation to be profitable, the cost of producing fish in terms of capital outlay, personnel, and consumption of bait must be no higher than that experienced by the present commercial fleet. The POFI operation, being an experimental one, was expensive, but some economies appear to be possible. The most practical methods are listed below.

1. Design netting gear that can be used in rough seas in order to overcome the present restriction to the lees of the islands.

2. Design a small chum boat that can be carried and launched by the seiner when a school is sighted. Bait reserves could be carried on the seiner.

3. Economize on bait by:

- a. Reducing chumming rate to a minimum
- b. Reducing the chumming period by:

- (1) determining how long before the net is pursed chumming can cease;
- (2) reducing preset chumming to a minimum by skillful boat handling;
- (3) using the smallest possible net and fast winches to reduce pursing time (this might also reduce the capital outlay).

4. Use boat time more efficiently by:

- a. Having bait boat locate a second school while the net boat is completing a set.
- b. Providing a supply of bait so that the equipment is not held up when catching bait.

FACTORS AFFECTING THE SUCCESS OF PURSE SEINING

WEATHER: As already intimated, conventional purse seining in the central Pacific is severely handicapped by prevailing high winds. This is indicated by the prevalence of Beaufort force 4 (11 to 16 knots) or higher winds in the various island areas (table 5). According to Bigelow and Edmondson (1947), 5- to 8-foot

seas are associated with force 4 winds, and 5-foot seas in our experience are near the maximum for effective use of conventional purse-seine gear. These wind conditions are compared (table 5) with those experienced off Cape San Lucas, Baja California, where force 4 winds are rarely experienced.

Strong winds particularly handicap purse-seine operations in the Hawaiian Islands area as they are most prevalent during the period when tuna are most abundant (May to October). Off the Line and Phoenix Islands winds are less severe, but nevertheless preclude any systematic effort to operate a purse seine.

Table 5 - Percentage of Force 4 or Higher Winds (From U. S. Pilot Charts for 1951)

Month	Hawaiian Islands	Cape San Lucas, Baja California	Line Islands	Phoenix Islands
Jan.	63	0	16	46
Feb.	36	0	91	41
Mar.	67	0	25	4
Apr.	29	0	22	0
May	49	0	11	0
June	82	0	41	0
July	91	0	32	15
Aug.	89	0	0	32
Sept.	84	4	94	0
Oct.	46	2	22	10
Nov.	44	0	11	55
Dec.	76	0	50	17

types of nets, e.g., gill nets. Generally, as the water becomes clearer the nets become less efficient. Increased clarity of the water might affect a purse seine by allowing the tuna to see it at a considerable distance, stimulating them to dive under the net.

Purse seines are constructed so that they belly somewhat when laid in the water. As soon as pursing is started this is accentuated so that very early in the set a shelf of webbing is formed under the vertical sections of the net. If the water were turbid so that a fish did not sight the net until it was within 10 feet of the web, a 10- or 15-foot shelf might stop it from sounding if it became panicky and dashed about at random after finding its downward path blocked. If it perceived the net at 100 feet, a shelf extending at least 100 feet into the center of the net would be needed to turn back the fish. Further, in very clear water a fish sounding and striking a shelf of netting might actually perceive the edge of the shelf and swim towards it.

There are few data available on the relative turbidity of the Central Pacific and West Coast of North America, but according to Jerlof (1951) surface transmission of blue light was 76 percent per meter south of the Galapagos Islands and 92 percent per meter south of the Hawaiian Islands. This unit is not particularly meaningful for purposes of comparison because light intensity decreases logarithmically with distance. More useful is the extinction coefficient (Sverdrup et al 1949, p. 82), which is a linear measure of water clarity. The extinction coefficient for Jerlof's Galapagos station is 0.0833, and for the Hawaiian station 0.2754. In other words, the water south of the Galapagos is about 3.3 times as turbid as water south of the Hawaiian Islands. Therefore, a fish could theoretically see a net 3-1/3 times as far in Hawaiian waters.

On the other hand, tuna may not become alarmed and sound wildly on sighting a net. They may simply swim to it and follow it down to the lead line like sheep following a fence. In this event water clarity would have little effect on the efficiency of a purse seine because, unless the fish were motionless, the difference

Because of the generally unfavorable sea and weather conditions of the central Pacific, purse seining must generally be carried on in the lees of the islands. With the exception of the Island of Hawaii, the lees are quite small, thus greatly limiting operations.

CLARITY OF THE WATER: Clarity of the water is a factor that affects the efficiency of many

in time (during which pursing might be proceeding) between the perceiving of the net at 100 feet and at 30 feet would be inconsequential.

Skipjack tuna are not inherently "afraid" of a boat or net, for schools of skipjack have been observed swimming close alongside our vessels. Whether this occurs in those rare instances when the course of the vessel and the course of the school coincide, or is the result of a definite attraction, has not been determined. Further, when skipjack were pursuing the live-bait chum, they were observed swimming or foraging within a foot or two of the net without showing alarm. They would even swim by the unclosed gap in the purse seine and within 15 feet of the boat with its throbbing machinery without showing alarm or attempting to escape.

These observations lead to the conclusion that tuna leave a purse seine not because of inherent fear of foreign bodies in the water, but rather because on encountering a wall of netting in their course they simply avoid the obstacle by diving under it. If this is true, perhaps purse-seine sets are not particularly successful unless some other factor prevents the fish from diving under the net.

VERTICAL THERMAL STRUCTURE: It is entirely possible that the vertical temperature structure of the water can influence the success of a purse-seine set, for if the lead line extends into cold water, yellowfin tuna and skipjack might be deterred from sounding out of the net.

The experimental sets in the Central Pacific have shown rather conclusively that tuna, even when corralled by the net, readily and quickly sound out of it. This occurred even when tuna were seen in the net several minutes after pursing began. Observations on the purse seines used by POFI showed that the lead line reached a depth of approximately 200 feet. At this depth the water in the Central Pacific, including Hawaiian waters, is generally only 2° to 5° F. cooler than the surface water temperature of about 80° F. It is difficult to imagine this temperature difference and the high absolute temperatures at the lead line acting to prevent fish from sounding out of the net. In contrast, bathythermograms from off Cape San Lucas, Las Tres Marias, and San Benedicto Island (West Coast purse-seine grounds) having surface temperatures from 74° to 87° F., show a 4° to 22° differential between the surface and 200 feet. In this area not only the difference between surface and lead line but the low temperature at 200 feet might frequently act as a deterrent to sounding out of the net.

Breder (1951) found that Jenkinsia stolifera reacted very positively to a temperature gradient; the fish, even when frightened, turned back when they encountered a particular temperature. Sounding tuna might well react in a similar manner, particularly if they were not under a strong stimulus such as fright, and there is reason to believe tuna are not greatly alarmed by the net.

BEHAVIOR OF TUNA ON THE SURFACE: The rapid, erratic swimming of tuna schools in the Central Pacific, particularly of the Hawaiian skipjack, has already been noted. Since the same species tend to swim slowly and are readily caught off Central America, there must be some factor in the Central Pacific environment that accounts for their behavior.

It is possible that the behavior of tuna while feeding is in large part a function of the behavior of their forage. It has been observed on the west coast of Central America that forage fishes will frequently "ball up" into a compact mass when attacked by tuna. This tends to produce a relatively stationary school of fish, an easy prey for a purse seiner. This sort of behavior has never been observed in the Central Pacific to the knowledge of the writers. The local forage species when attacked flee rapidly as a school or scatter with the tunas in pursuit.

Further evidence that forage-fish behavior controls tuna behavior on the feeding grounds is afforded by the behavior of the skipjack when the purse seiner-chum boat combination was used to capture them. By the simple expedient of introducing the docile nehu, a species not normally found where tuna are feeding, the behavior of the skipjack is markedly changed. The speed of the schools can be slowed to 2 knots and they can be led into a circle inside a purse seine, all in response to a different food supply.

Reintjes and King (1953) have shown that yellowfin tuna in the Central Pacific are rarely gorged. The average volume of the stomach contents is such that the fish may have to forage rather constantly in order to obtain an adequate daily ration. Presumably this would result in continuous movement of the tuna schools.

CONCLUSIONS

Tuna purse seining shows little promise of success in Central Pacific waters. On our trials we found that:

1. The area and period of operations were greatly limited by prevailing wind and sea. Even in the lees of the islands operations were hindered by the coral reefs and the few schools present.
2. The tuna schools swam wildly and rapidly, frequently outrunning the vessel, and of course making it extremely difficult to set on them.
3. Tuna surrounded in the conventional manner dove under the seine. These tuna may do this easier than off the American coast because the water is much clearer and also warm to a greater depth. Cold water which might be a barrier to sounding, occurs below the lead line of even an extra-deep seine in the Central Pacific.
4. Live-bait chum would hold a tuna school while it was being surrounded by the purse seine. Small, but apparently entire schools, were captured in this way. Commercial operation in this manner is questionable because there is no proof that this method--using an expensive purse seine--would catch more tuna than pole-and-line fishing with live bait.

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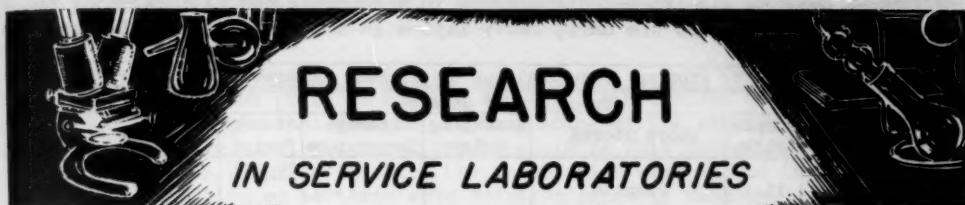
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Progress in Projects, March 1953

REFRIGERATION: Cold-Storage Life of Frozen Halibut: The purpose of this project is to provide information on the cold-storage life of frozen halibut packed according to present commercial methods, and to compare various packaging and storing methods. This information will be of value to producers and distributors engaged in packaging, storing, and marketing frozen halibut. It will also serve as a basis for the requirements set forth in the Federal specifications for frozen fishery products. Four series of samples were prepared. A description of the samples and the results of the storage tests are as follows:

Five dressed (heads off and eviscerated) halibut, weighing from 20 to 40 pounds each, were obtained from each of three commercial fishery firms. These fish were sharp frozen and then glazed with potable water. Four halibut from each firm were packed in paper-lined wooden boxes and held in the company's cold-storage room at 0° F. for periods of 6 to 9 months as needed to prepare the test series. The fifth halibut from each firm was steaked immediately after freezing and glazing. These steaks were glazed and packaged for storage as indicated in each series. One of the following packaging methods was adopted for the steaks and in each series of tests the packaging method used is indicated by the packaging code letter:

Description of Packaging for Frozen Halibut Steaks	
Packaging Code	Method
A	Glazed steaks were packed in layers in a 15-pound corrugated-type cardboard carton lined with parchment paper. A sheet of parchment paper was placed between each layer of steaks.
B	Glazed steaks were placed in MSAT cellophane bags. The bags were heat sealed and packed in 15-pound corrugated-type cardboard cartons.
C	Glazed steaks were packed in layers in a 60-pound fibre board box in accordance with military requirements.

For the organoleptic tests the halibut steaks were examined while frozen, after thawing, and after baking in an oven.

Sample Lot Number	Description of Samples	Treatment of Steaks			Total Storage Period	
		Packaging Code	Storage Temperature	Storage Period Months	Dressed Fish	Steaks Months
I-1	Steaks from frozen dressed halibut which were stored for 0 days at 0° F.	A	0° F.	9	0	+ 9
I-2	Steaks from frozen dressed halibut which were stored 6 months at 0° F.	A	0° F.	3	6	+ 3
I-3	Steaks from frozen dressed halibut which were stored 9 months at 0° F.	Steaks not packaged, but tested immediately after cutting.	-	0	9	+ 0

There were no significant differences in appearance and texture among the three lots. Portions of the dark, fatty layers in samples from lots I-1 and I-2

Series II - Effect of Storing Frozen Halibut at the Same Temperature at Different Plants							
Description of Sample	Sample Lot No.	Treatment of Steaks			Total Storage Period		
		Where Stored	Packaging Code	Storage Temperature	Storage Period Months	Dressed Fish	Steaks Months
Steaks from frozen dressed halibut which were stored 6 months at 0° F.	II-1	Plant A	A	0° F.	3	6	+ 3
	II-2	Plant B					
	II-3	Plant C					
	II-4	Fishery Technological Laboratory					

varied from slightly rancid to definitely rancid in flavor. No rancidity was found in the samples from lot I-3. Preference was given to samples from lot I-3 and second preference to lot I-2. All three lots were acceptable.

The packed steaks adjacent to the inner surface of the boxes were extremely dehydrated. The inner layers of steaks showed little or no dehydration. No sig-

Series III - Effect of Storage Temperature on Frozen Halibut Steaks							
Description of Sample	Sample Lot Number	Treatment of Steaks		Total Storage Period		Observations	
		Temperature of Storage	Packaging Code	Storage Period Months	Dressed Fish Months	Steaks	
Steaks from frozen dressed halibut which were stored for 6 months at 0° F.	III-1	20° F.	A	3	6 + 3	The white meat darkened to light-brown tinge. Dark fatty layer was discolored. Cooked samples were rancid. Unacceptable commercially.	
	III-2	0°-7° F.	A	3	6 + 3	The exposed portions of dark fatty layer was rancid. Acceptable commercially.	
	III-3	0° F.	A	3	6 + 3	Dark meat in a few samples was slightly rancid. Acceptable commercially.	
	III-4	-15° F.	A	3	6 + 3	Two out of five steaks showed rancidity in the dark fatty layer. Acceptable commercially.	
	III-5	-20° F.	A	3	6 + 3	Only one of 15 steaks showed rancidity in dark layer. This lot was rated best of all five. Acceptable commercially.	

nificant differences in quality were found among the steaks stored at the four different cold-storage plants. There was more variation within a lot than from lot to lot. The four lots of steaks were considered acceptable. However, the packaging method did not provide adequate protection of the samples from dehydration.

Series IV - Effect of Various Packaging Methods and Storage Temperatures on Storage Life of Frozen Halibut									
Description of Samples	Packaging Method	Treatment of Steaks		Total Storage Period		Observations			
		Code	Temperature of Storage	Storage Period Months	Dressed Fish Months				
Steaks cut from frozen dressed halibut immediately after freezing were glazed, packaged, and stored.	A	0° F.	9	0 + 9	Steaks adjacent to sides of box had lost considerable glaze and showed evidence of dehydration. The fatty layer of about half of the steaks was rancid.				
	B	0° F.	9	0 + 9	Steaks were dehydrated slightly in certain areas. Slight rancidity was detected in only one of six steaks.				
	A	-15° F.	9	0 + 9	Steaks adjacent to sides of carton showed small amount of dehydration.				
	B	-15° F.	9	0 + 9	Very little change was noted in the condition of the samples.				
Steaks cut from frozen dressed halibut which had been stored 6 months at 0° F., were glazed, packaged, and stored.	B	0° F.	3	6 + 3	Steaks showed practically no loss of glaze. Slight rancidity was noted in fatty portion of some steaks.				
	C	0° F.	3	6 + 3	Steaks showed only a small loss of glaze. Slight rancidity was noted in the fatty portion of some steaks.				
	B	-20° F.	3	6 + 3	Steaks showed only a small loss of glaze.				
	C	-20° F.	3	6 + 3	Steaks showed only a small loss of glaze.				

to lot. The four lots of steaks were considered acceptable. However, the packaging method did not provide adequate protection of the samples from dehydration.

Study of Texture Change of Canned Salmon Prepared from Frozen Fish: Freezing and storing salmon prior to canning cause certain changes to occur in the canned product. The principal changes are toughening of the canned meat and the formation of excessive curd. In an effort to minimize this formation of curd, experimental packs were prepared in which the thawed fish were dipped in a salt (sodium chloride) solution or tartaric acid solution prior to canning. Alaska red salmon were used. The fish were frozen in the round at -20° F., glazed, and then stored at 0° F. After 14 weeks of storage, the fish were thawed and the experimental packs prepared. The canned samples ($\frac{1}{2}$ -flat cans) were examined after one month's storage at room temperature. Description of the packs and the results of the test are summarized in the following table:

Observations on Canned Alaska Red Salmon Processed from Frozen Fish

Lot of Canned Red Salmon	Treatment of Thawed Salmon	Amount of Curd in Cans	Saltiness of the Canned Product
A	Canned in normal "commercial" manner.	Excessive	Acceptable
B-1	Can-height chunks were dipped in saturated salt (NaCl) solution at 65° F. for 1 minute and drained prior to packing in cans and processing. (No salt was added to the can.)	Slight	Insufficient salt
B-2	Same as sample B-1, except that the chunks were dipped for 2 minutes.	Slight	Acceptable
C-1	Can-height chunks were dipped in 5-percent solution of tartaric acid for 1 minute. One-half teaspoon of salt was added to the can prior to sealing and processing.	Very Slight	Acceptable
C-2	Same as sample C-1, except that the chunks were dipped for 2 minutes.	Very Slight	Acceptable

In every instance, the samples dipped in either brine (B-1 and B-2) or tartaric acid (C-1 and C-2) were superior in appearance to the canned salmon prepared in the regular commercial manner (A). The one-minute dips appeared equally as effective as the two-minute dips for each respective solution. The tartaric acid solution (5 percent) dip was more effective than the sodium chloride solution dip. In both the normal and brine-treated lots the canned fish showed a considerable tendency to stick to the lids or ends of the can, resulting in a rough surface when the cans were opened. The tartaric acid dip eliminated the tendency of the fish to stick to the lids. Those canned samples treated with tartaric acid had a smooth surface in the can and were free of curd. A slightly abnormal red-orange coloration of the tartaric acid treated fish was noted, but this was not objectionable even when compared with canned salmon prepared from unfrozen fish.

Penetration tests for comparing texture revealed that none of the dips had any effect on the texture (degree of firmness) of the canned product.

Further tests were carried out to determine the absorption of tartaric acid during the one-minute dip in 5-percent tartaric acid solution. For this particular test, king salmon were used, since they were the species available. These samples had been frozen and held in storage for about 5 months at -10° F. The salmon were thawed and cleaned, and then cut into can-size ($\frac{1}{2}$ -flat) chunks. The chunks were divided alternately into two lots. One lot was used as a control sample. The other was treated with tartaric acid as follows: The chunks were dipped in 5-percent tartaric-acid solution for 1 minute at a temperature of 60° F. The pH of the solution was 1.9.

Both lots, the control and treated, were packed into cans, one-half teaspoon of salt was added, and the cans processed in the usual manner. The cans were stored two weeks prior to analysis for tartaric acid content.

Free acid in the liquor and in the meat was determined in six cans of fish from each of the two lots. Tartaric-acid content was considered the difference between the combined average of the control lot and the individual can averages of the treated lot. The results are shown in the table.

Tartaric-Acid Content of
Canned King Salmon Prepared
from Frozen Fish Dipped in
a 5-Percent Tartaric Acid
Solution Prior to Canning

Can Number	Tartaric Acid Content	
	Liquor	Meat
1	0.044	0.010
2	0.088	0.038
3	0.067	0.020
4	0.044	0.010
5	0.091	0.028
6	0.064	0.024
Avg.	0.066	0.022

The average percentage of free tartaric acid in a $\frac{1}{2}$ -flat can of salmon was estimated to be 0.029 percent.

Although use of tartaric acid dips shows promise of preventing curd formation in canned salmon prepared from frozen fish, further tests are necessary to confirm the results. It will also be necessary to determine whether or not use of the process will meet the provisions of the Federal Food, Drug, and Cosmetic Act.

The second phase of this project involves a study of the effect of cell breakdown of the frozen and processed fish on the texture of the canned product. Four experimental packs were prepared in the late summer of 1952 and the canned samples ($\frac{1}{2}$ -flat cans) examined after about five months of storage. The description of the experimental packs and summary of the results are presented in the following table:

Lot of Canned Alaska Red Salmon	Treatment of Samples	Penetrometer Reading/ (Average of 10 Cans)	
		Millimeters	
1-A	Fresh chunks of fish were canned and processed immediately at 242° F. (steam pressure) for 85 minutes.	14.4	
1-B	Fresh chunks of fish were canned; the cans were frozen at -20° F. and then stored at 0° F. After 9 weeks of storage the fish (in the cans) were thawed in cold water then processed at 242° F. (steam pressure) for 85 minutes.	10.3	
2-A	Skinned and boned salmon was ground in a blender. The blended material was packed in cans and processed immediately at 242° F. (steam pressure) for 85 minutes.	10.5	
2-B	Skinned and boned salmon was ground in a blender. The blended material was packed in cans, frozen at -20° F. and then stored at 0° F. After 9 weeks of storage the material in the cans was thawed in coldwater, then processed at 242° F. (steam pressure) for 85 minutes.	9.1	

1/ THE PENETROMETER READING VARIES INVERSELY WITH THE TOUGHNESS OF THE FISH.

The penetrometer readings for samples 1-A and 1-B show that toughening occurs in canned salmon prepared from frozen fish. The difference in the average penetrometer readings for the fish that had been ground (2-A and 2-B) was not significant. This seemed to indicate that when the cell walls of the fish tissues were ruptured by mechanical means prior to freezing the meat, toughening of the canned product did not occur. Freezing did have considerable effect on curd formation, however, since sample 2-A prepared from unfrozen fish that had been ground showed no curd, while sample 2-B prepared from frozen fish that had been ground showed heavy curd formation. (Ketchikan)

* * * * *

Freezing Fish at Sea, Defrosting, Filleting, and Refreezing the Fillets: The research trawler Delaware was dry-docked at a shipyard in Chelsea, Massachusetts, for annual overhauling and painting. The brine-freezer tank was modified.

A prototype of the new brine-freezer mechanism is being tested in the laboratory pilot plant in order to iron out any kinks that may be inherent to the present design. (Boston)

* * * * *

BYPRODUCTS: Vitamin Content and Nutritive Value of Fishery Byproducts: Vitamin B₁₂ assays of tuna, mackerel, and herring meals were completed. The results are summarized as follows:

Meal	Description of Sample Sample	Moisture	Oil	Vitamin B ₁₂ Content (Moisture- and oil-free basis)	
				Micrograms per Gram	
Mackerel	One sample from one bag.	9.70	10.93	0.32	
Herring	Composite sample from 10 bags.	11.23	9.87	0.33	
Herring	Composite sample from 30 bags.	11.55	9.84	0.31	
Tuna (Albacore)	Three individual samples from each of three bags of one lot, 1/	7.06	12.92	0.29	
Tuna	Twelve individual samples from each of 12 bags of one lot of 50% skipjack-50% yellowfin tuna meal, 1/	5.07	9.48	0.38	
	Four individual samples from each of four bags of one lot of 50% skipjack-50% yellowfin tuna meal, 1/	8.91	7.91	0.27	

1/RESULTS ARE EXPRESSED AS AVERAGE OF THE SAMPLES.

* * * * *

ANALYSIS AND COMPOSITION: Composition and Cold-Storage Life of Fresh-Water Fish: The proximate composition of the waste portion of certain fresh-water fish was determined. The results are presented in the following table:

Composition of the Waste Portion/ of Certain Fresh-Water Fish

Species of Fish Common Name	Scientific Name	Where and When Caught	Composition of Waste Portion/			
			Moisture Percent	Oil Percent	Protein Percent	Ash Percent
Buffalo fish	<i>Ictalurus</i> sp.	Mississippi River, June 1952	70.0	8.9	15.6	7.5
Bullhead	<i>Ameriurus</i> sp.	Lake Benton, Minn., Aug. 1952	76.9	5.4	14.9	4.0
Carp	<i>Cyprinus carpio</i>	Lake Benton, Minn., Aug. 1952	63.8	15.0	16.2	7.1
		Mississippi River, May 1952	64.9	9.8	17.4	9.3
Chub	<i>Leucichthys</i> sp.	Lake Michigan, July 1952	64.6	21.2	12.3	3.6
Lake trout ^{2/}	<i>Cristivomer nelsoni</i>	Lake Superior, June 1952	64.3	16.0	15.6	4.7
Perch, yellow	<i>Perca flavescens</i>	Lake Erie, June 1952	68.8	8.7	16.3	7.5
Pike, blue	<i>Stizostedion glaucum</i>	Lake Erie, June 1952	66.8	10.7	15.9	7.0
Pike, yellow	<i>Stizostedion vitreum</i>	Lake Erie, June 1952	71.2	8.9	16.3	5.1
Sheepshead	<i>Aplodinotus grunniens</i>	Mississippi River, May 1952	62.3	18.1	15.5	6.8
		Lake Erie, June 1952	66.3	12.8	15.9	5.5
Squawfish	<i>Ptychocheilus grandis</i>	Ukano Lake, Wash., Feb. 1953	69.5	10.4	16.0	5.9

1/WASTE PORTION CONSISTED OF ALL THAT REMAINED AFTER SKINLESS FILLETS WERE CUT.

2/Viscera not included in the waste portion for lake trout.

(Seattle)

Project Reviews

DEVELOPMENT OF SPECIALTY FOOD PRODUCTS FROM ALASKA FISH

AND EDIBLE FISH TRIMMINGS--Review for Period July 1952-March 1953

This project was initiated to develop specialty products from Alaska fish and edible fish trimmings in order to encourage off-season industries in Alaska. This is the progress in developing various products during the period July 1952 to March 1953:

CANNED SALMON EGG SPREAD: A canned salmon egg spread was developed that showed good consumer acceptance. Publication of the process must await a final and favorable report on thermal-process determinations.

PICKLED HERRING: An improved pickling formula for Alaska herring was tested. The new formula limits the use of red peppers and quadruples the quantity of sugar previously used. The recommended formula and procedure are as follows: Remove head, viscera, and kidney from the herring. Wash fish thoroughly with fresh water. Place the dressed herring in a 90° salometer brine until "struck through" (7 to 9 days). Remove the fish from the brine and then freshen them in running coldwater overnight (15 hours). Drain fish. Cut into fillets, and cut fillets into about 1½-inch pieces. Pack the pieces of fish layerwise in an earthenware crock and sprinkle spices between each layer. Add to the crock a pickling solution made up of 1½ quarts of vinegar, 1½ pints of water, and 8 ounces of sugar. Allow the herring pieces to stand in this pickling mixture for about 2 days, then repack in jars with the spices used in pickling. Packing of fish and spices should be done carefully to make a neat-appearing pack. Fill jars with the pickling solution and add one red pepper and an onion ring to each jar. The spices required to pickle 11 pounds of salted herring are: allspice, 3 oz.; bay leaves, 1 oz.; mustard seed, 2 oz.; black pepper, ½ oz.; cloves, ½ oz.; and sliced onions, 2 oz. The procedure should produce a spiced Alaska herring product excellent in appearance, flavor, and texture.

CLAMS: A canned smoked clam product was developed which was excellent from the standpoint of appearance and flavor, but had a tough texture. Attempts to improve the texture have been unsuccessful.

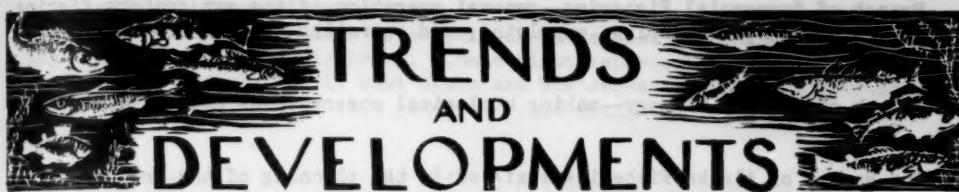
FISH SPREADS AND PASTES: A smoked chum-salmon spread was prepared. The product received fairly good acceptability from the standpoint of texture and flavor. The color of the product, which was somewhat yellow, seemed to be the limiting factor. Further tests to improve the color will be carried out. The present formula is:

6 lbs. ground smoked chum salmon (skinless and boneless)	1½ tsp. garlic salt
18 oz. tomato puree	36 oz. melted oleomargarine
24 oz. water	3 tsp. gelatin

Mix the ingredients in a large container. Pour into ½-pound cans. Vacuum seal the cans and process for 40 minutes at 242° F. (steam pressure), and finally water cool. (Smoked pink salmon may be substituted for smoked chum salmon.)

SMOKED SHRIMP: Excellent packs of smoked Alaska shrimp in oil have been prepared. Alaska shrimp seem to lend themselves well to the preparation of this type of product. (Ketchikan)





TRENDS AND DEVELOPMENTS

Additions to the Fleet of Fishing Vessels

A total of 39 vessels of 5 net tons and over received their first documents as fishing craft during January 1953--4 more than in January 1952. Florida west coast led with 10 vessels, followed by Louisiana with 7 vessels and Florida east coast with 5 vessels, according to a report from the Bureau of the Customs.

Vessels Obtaining Their First Documents as Fishing Craft, January 1953

Section	January		Total 1952
	1953	1952	
	Number	Number	Number
New England	2	1	30
Middle Atlantic	-	2	26
Chesapeake	4	4	65
South Atlantic	8	11	89
Gulf	19	6	161
Pacific Coast	4	7	203
Great Lakes	-	1	13
Alaska	2	3	88
Total	39	35	675

NOTE: VESSELS HAVE BEEN ASSIGNED TO THE VARIOUS SECTIONS ON THE BASIS OF THEIR HOME PORT.



Alaska Salmon Research Extended to Offshore Waters

Research on Alaska salmon in offshore areas of the North Pacific, including the Bering Sea, will be conducted in the summer of 1953 by the U. S. Fish and Wildlife Service, the Secretary of the Interior announced on March 27. This work will involve the catching of salmon in waters north and south of the Aleutian Islands in an area centered at 175° W. longitude, which runs through Atka Island.

Objectives of the program are (1) to gain as much knowledge as possible of the distribution, abundance, life history, racial composition, and other factors of the North Pacific salmon in offshore waters, and (2) to test and evaluate the effectiveness of various types of gear for catching salmon on the high seas. This will involve developing means of capturing salmon in considerable numbers suitable for future tagging experiments.

Fishing will begin not later than June 1, which will require departure of the vessel from Seattle about May 15. Activities will continue through July and possibly into August, depending on requirements of the program.

Detailed planning and duties of this project are the joint responsibility of three Branches of the Fish and Wildlife Service:

Branch of Commercial Fisheries--general operation of the exploratory fishing vessel John N. Cobb; developing, supplying, and operating the gear for catching the salmon.

Branch of Fishery Biology--making biological observations and analyzing the data.

The Branch of Alaska Fisheries assisted in the planning of the project.

A cooperator from the Fisheries Research Institute of the University of Washington will also be aboard the vessel to work on the project.

The Director of the U. S. Fish and Wildlife Service explained that the project was a part of the preliminary salmon research begun in the summer of 1952 in connection with the International Convention for the High Seas Fisheries of the North Pacific Ocean, signed at Tokyo, May 9, 1952, subject to ratification by the United States, Canada, and Japan. The Convention establishes the meridian of 175° W. longitude as a provisional line of demarcation between salmon of American and Asiatic origin. Both Japan and Canada have agreed to abstain from fishing for salmon east of this line in the Bering Sea. A protocol to the Convention provides for scientific investigation to determine the location of a permanent line of demarcation.

Although the Convention has not yet entered into force, the Fish and Wildlife Service has already initiated research in the area. During the summer of 1952, a Service biologist accompanied a Japanese salmon expedition operating in the Bering Sea west of 175° W. longitude to collect data bearing upon the distribution of salmon.



Atlantic States Marine Fisheries Commission

NORTH AND MIDDLE ATLANTIC SECTIONS MEET: Dragging regulations in inland waters and the marginal sea were discussed at a joint meeting of the North and Middle Atlantic sections of the Atlantic States Marine Fisheries Commission held at New York on March 12. The U. S. Fish and Wildlife Service was requested to summarize all available data on the effects of dragging on bottom life and the sea bottom, and if data is inadequate, to outline a program of study and estimate costs.

New York, New Jersey, and Massachusetts fishermen reported concern over the decline in sea-scallop production and the sections, after full discussion, voted to ask the Fish and Wildlife Service to make a quick study and report on this matter.

It was announced that the Fish and Wildlife Service will coordinate the Commission's joint federal-state research program on striped bass. A Service scientist will visit the various states along the Atlantic coast to encourage and coordinate striped bass research among the state fishery agencies and laboratories. He will also conduct limited research on the racial composition of various striped bass stocks. The officials and scientists of the two sections were shown the new Striped Bass Compendium, sponsored by the Commission's Striped Bass Committee, and just published by the Bingham Oceanographic Laboratory of Yale University. This work summarizes all the data on the striped bass published to November 1949 and contains new material relating to Chesapeake Bay, the principal source of the Atlantic striped bass stock.

New York, Connecticut, and New Jersey members discussed at length New York's new act repealing the 6-inch size limit on butterfish adopted at the request of anglers and commercial fishermen. Connecticut representatives declined to recommend similar legislation in that State and New Jersey officials indicated they would not take any action this year but would study the results of New York's action.

Also discussed were the new Weichel Act adopted by Congress in 1952, forbidding the shipment of fish into or out of any state in violation of its laws; the regulation of out-of-state boats in inland marine waters; Tidelands bills pending in Congress; offshore waste disposal by industry; and several minor bills in the several states.

California

TUNA FLEET ALERTED TO WATCH FOR TAGGED FISH: California's tuna-fishing fleet has been alerted to be on the lookout during 1953 for fish tagged by the State Department of Fish and Game, reports a March 18 release by that Agency. Marine biologists have been tagging skipjack, albacore, and other tuna for 12 months under the Department's tuna research program, and are keenly interested in examining all tagged fish caught, the State agency reports. Recoveries of tagged tuna will help the Department determine basic migration patterns, rate of growth, and population groups. The over-all aim is to gain knowledge so that the fishery's abundance and sustained yield can be assured. Several tagged tuna already have been recovered.

Fishermen are asked to preserve in the round all tagged fish recovered, and turn them over to the nearest California Fish and Game office. The State's current marine tag is a short piece of plastic "spaghetti" threaded through the fish behind the second dorsal fin. It contains the original tagging data and should be returned with the fish.

Federal Purchases of Fishery Products

FRESH AND FROZEN FISHERY PRODUCTS PURCHASED BY DEFENSE DEPARTMENT, FEBRUARY 1953: The Army Quartermaster Corps in February 1953 purchased a total of 1,483,034 pounds (valued at \$866,229) of fresh and frozen fishery products for the military feeding of the U. S. Army, Navy, Marine Corps, and Air Force (see table). This was 4.8 percent less in quantity but 3.1 percent more in value as compared with the previous month; and less than in February 1952 by 31.8 percent in quantity and 16.8 percent in value.

Purchases of fresh and frozen fish by the Army Quartermaster Corps for the first two months in 1953 amounted to 3,041,206 pounds (valued at \$1,706,245), a

Purchases of Fresh and Frozen Fishery Products by Department of Defense, (February and the First Two Months, 1952 and 1953)							
Q U A N T I T Y		V A L U E					
February	January-February	February	January-February	1953	1952	1953	1952
1953	1952	1953	1952	1953	1952	1953	1952
Lbs.	Lbs.	Lbs.	Lbs.	\$	\$	\$	\$
1,483,034	2,173,316	3,041,206	4,490,727	866,229	1,041,122	1,706,245	2,126,116

decrease of 32.3 percent in quantity and 19.7 percent in value as compared with the same period in 1952.

Prices paid for fresh and frozen fish by the Army Quartermaster Corps in February averaged 58.4 cents per pound as compared with 53.9 cents in January, and 47.9 cents in February 1952.

In addition to the purchases of fresh and frozen fishery products indicated above, the Armed Forces generally make some local purchases which are not included in the above figures. Therefore, actual purchases are somewhat higher than indicated, but it is not possible to obtain data on the local purchases made by military installations throughout the country.



Fishery Products Marketing Prospects for April-June 1953

Civilian per-capita consumption of fishery products during the early part of 1953 was about as large as a year earlier, and is expected to continue at the 1952 rate at least through mid-year. Retail prices, judging from trade reports from important wholesale markets, have been much lower than in the comparable months of 1952. Current indications are that retail prices for fresh and frozen products as a group during the spring and early summer may be considerably below those in the same part of last year, while those of the canned commodities may be slightly lower.

The commercial catch of fish and shellfish during January-March 1953 was somewhat smaller than in the first quarter of 1952. In some areas the size of the catch was limited by the availability of fish, as in the case of shrimp for the Gulf Coast States; in other areas (principally the Northwest) the relatively low prices paid to fishermen discouraged commercial fishing activity.

Commercial freezings of fishery products in the United States and Alaska during the first quarter of this year totaled almost 29 million pounds, down 18 percent from output in the comparable part of 1952. Freezings of shrimp and haddock fillets were sharply lower thus far in 1953 than a year earlier. Total output of frozen fish and shellfish is expected to increase by mid-1953, reflecting the seasonal increase in commercial landings.

Record stocks of frozen fishery products in cold storage in the United States and Alaska on April 1 totaled 119 million pounds, 4 percent above a year earlier. An unusually large proportion of the total stocks on April 1 was made up of frozen halibut and frozen fillets of cod, haddock, and ocean perch.

About the same volume of canned fishery products has been available thus far this year as in the same part of 1952, when supplies were relatively light. The larger supplies of canned tuna, Maine sardines, mackerel, and anchovies were more than offset by smaller quantities of canned salmon and the scarcity of California sardines.

Current prospects are that supplies of canned fish and shellfish will total no larger than in 1952 at least until late summer, when the new packs of most products start moving into domestic distribution in volume.

Imports of frozen groundfish and ocean perch fillets, a very important group among the fishery products received from abroad, totaled 16 million pounds during

January and February 1953, about 15 percent smaller than a year earlier. Imports of these products during the next few months will be large, but are not expected to equal total receipts during the same part of 1952.

Exports of edible fishery products during January and February, especially of the canned commodities, were somewhat below the relatively small volume of a year earlier. During the spring months, exports may not exceed those of a year earlier because of the comparatively small domestic supplies of canned salmon and California sardines (pilchards), especially of the latter.

This analysis appeared in a report prepared by the Bureau of Agricultural Economics, U. S. Department of Agriculture, in cooperation with the U. S. Fish and Wildlife Service, and published in the former agency's April-June 1953 issue of the National Food Situation.



Metal Cans--Shipments for Fishery Products, January 1953

 Total shipments of metal cans for fish and sea food in January 1953 amounted to 3,875 short tons of steel--30 percent less than the 5,500 short tons shipped in December 1952, but 4 percent more than the 3,743 short tons shipped in January 1952. This is based on a March 24 report issued by the Bureau of the Census.

NOTE: STATISTICS COVER ALL COMMERCIAL AND CAPTIVE PLANTS KNOWN TO BE PRODUCING METAL CANS. REPORTED IN BASE BOXES OF STEEL CONSUMED IN THE MANUFACTURE OF CANS, THE DATA FOR FISHERY PRODUCTS ARE CONVERTED TO TONS OF STEEL BY USING THE FACTOR: 23.0 BASE BOXES OF STEEL EQUAL ONE SHORT TON OF STEEL.



North Atlantic Fishery Investigations

"ALBATROSS III" COLLECTS SAMPLES FOR OCEAN PERCH LIFE-HISTORY STUDY (Cruise No. 45): A small sample of very small ocean perch (54-80 mm.) was collected by the research vessel Albatross III operated by the Service's Branch of Fishery Biology. The cruise to the western part of the Gulf of Maine commenced on March 3. The small ocean perch samples were sought for life-history studies and to endeavor to determine the vertical distribution of ocean perch at night. No ocean perch were caught during night-fishing operations. These small sizes were previously unobtainable and are valuable for age and growth studies. The vessel returned to Woods Hole on March 11.

Extremely rough weather and the unfortunate loss of fishing gear did much to hamper fishing. Although the small ocean perch were not collected in the quantities hoped for, some concentrations of small haddock (13-18 cm.) were found and specimens were collected which may prove valuable for haddock food study work.

* * * * *

"ALBATROSS III" COLLECTS HADDOCK EGGS AND LARVAE (Cruise No. 46): Approximately 3,000 miles of continuous plankton tows were made on Georges Bank and the Gulf of Maine by the Service's research vessel Albatross III to collect samples and data to determine the distribution of haddock eggs and larvae. Operated by the Branch of Fishery Biology, the vessel made tows at the surface and 10-meter depths with Hardy Plankton Recorders. Continuous salinity and temperature records were also obtained. A total of 800 drift bottles were released throughout the area.

Large concentrations of eggs were found on the Northeast peak of Georges Bank, in South Channel, and on Browns Bank. Some of the egg samples were hatched out for identification purposes. The data have yet to be analyzed. It is believed a very complete coverage was made of the area of concern.



Pacific Oceanic Fishery Investigations

"CHARLES H. GILBERT" STUDIES TUNA DISTRIBUTION AND MOVEMENTS IN HAWAIIAN AREA (Cruise 7): The study of the winter distribution and movements of surface tuna schools in the Hawaiian area in relation to temperature and related phenomena was carried out by the Service's research vessel Charles H. Gilbert on a 19-day cruise completed at Honolulu on February 14. Also, tests were conducted with fish attractants, bait tank aeration, and the use of the hydrophone and recorder for tuna detection. Live small yellowfin were obtained and delivered to the Coconut Island ponds in Hawaii in good condition.

Notable concentrations of small schools of skipjack tuna attended by birds were encountered west of the Kona coast to more than 100 miles from land, and southwest of Lanai. Replicate passes in opposite directions along each leg of the cruise were made to provide a basis for estimating the variability in counts of flocks and schools in a given area. Preliminary inspection of the data indicates significant variations in counts of flocks and schools with vessel direction, from area to area, and from day to day, but not with time of day. A possible explanation for some of the variability lies in the assumption of a systematic northeasterly movement of schools into the area south of the islands during the period of the survey. Abrupt surface temperature discontinuities north of Oahu and southwest of Lanai were found and sectioned by bathythermograph lowerings in close succession.

Preliminary tests with a fish attractant solution mixed with fluorescein were carried out north of Oahu. Reactions of the fish were not observed. Bait-tank aeration by a compressed air jet was found to be efficient as a means of holding live bait during dead-ship experiments with the hydrophone. Mechanical failure cancelled the sole opportunity to use the hydrophone in an area where skipjack tuna were abundant.

* * * * *

STEEL-WIRE LONG-LINE GEAR TESTED BY "CHARLES H. GILBERT" (Cruise 10): There appears to be no significant difference between the behavior of cotton and steel long-line gear in the water, according to tests made by the Pacific Oceanic Fishery Investigations' research vessel Charles H. Gilbert. On this 4-day cruise, completed at Honolulu on March 26, the vessel operated off the Kona coast and SW. of Lanai. The tests with the steel-wire gear were made in these areas at three fishing stations. Three big-eyed tuna, two sharks, and one manimahi were taken on the wire gear.

Tests of cotton long-line gear treated with Stockholm tar were made, but results were inconclusive. Newly-tarred gear was difficult to handle with the long-line hauler. During the latter part of the cruise, as excess tar was washed from the line, an improvement was noted. Additional tests are necessary to show whether or not tar is suitable as a long-line preservative.

Sea tests of two types of experimental plastic depth gauges were made by lowering gauges to various depths with a 900-foot BT. Each type of gauge, when lowered several times to the same level, showed uniform readings with small differences between successive trials; however, calibration corrections or differences between individual gauges were very large.

* * * * *

"JOHN R. MANNING" MAKES EXCELLENT YELLOWFIN TUNA CATCHES NEAR EQUATOR (Cruise No. 14): Excellent long-line catches of yellowfin tuna were made in the Pacific equatorial zone by the POFI research vessel John R. Manning on a two-months' experimental fishing cruise completed at Honolulu on March 25. The deep-swimming tunas of the equatorial zone were sampled by fishing long lines at a series of stations southward across the equator in the vicinity of 150° W. longitude. After refueling at Papeete, Tahiti, a second series of stations were fished along 140° W. longitude on the homeward leg. Particularly good catches of yellowfin were made in the latter section where catch rates ran as high as 17 tuna or about one ton per 100 hooks per day of fishing. This was more than twice the rate found on previous cruises in the same locality and 8 times greater than the average catch rate in Hawaiian waters.

On both sections, the biggest catches were made within 1° of the equator. The apparent abundance of tuna was much higher on 140° W. longitude than on 150° W. longitude. The average tuna catch (all species) per 100 hooks per day's fishing for eight stations between 4°30' N. and 4° S. on 150° W. longitude was 3.48 fish as compared with an average of 8.72 fish for eight stations between the same latitudes on 140° W. longitude. The average yellowfin catch rates for the same two series of stations were 2.75 and 7.49 fish, respectively.

To show the diurnal variation in availability of tunas to long-line fishing and the effect of soaking time on the long-line catch, a series of four special stations was fished near the equator--two 12-hour stations and one 24-hour station on the 150° W. longitude section and one 24-hour station on the 140° W. longitude line. Although these experiments were carried out at locations which had afforded good catches during the preceding day, the results were generally poor and too few fish were caught to contribute much information on the questions under study. Sharks and bait-stealing organisms, probably squid, were found to be much more active during the night than in the daytime.

A total of 40 albacore, ranging in weight from 30 to 50 pounds, were taken, all of them south of the equator. On the 150° W. longitude section, albacore were caught at all of the stations from 1° S. to 15°30' S. latitude, the last station before Tahiti. But on the return voyage, they were taken only at the two southernmost stations, at 13°30' S. and at 10°10' S. latitude.

A total of 20 baskets of experimental long lines with 1-fathom branch lines were used on the 150° W. longitude section, in addition to the usual 40 baskets of standard gear. It appeared that these lines caught fish as well as the regular gear, but a tendency for the short branch lines to wind up tightly during the haul made the experimental gear slow and troublesome to handle.

The relation of the hooks to the thermocline was investigated by means of echo-sounding, and the use of depth gauges on the line. The echo-sounding was fairly successful and indicated a high degree of variability in line depth.

Information was collected concerning the small-scale tuna fishery of Tahiti with a view to learning anything which might be profitably applied to fishery de-

velopment in the United States island territories in the Pacific. It was found that the Tahitian fishery has apparently been held back by the same obstacles of inadequate bait supplies, primitive fishing and canning methods, and distance from the major consuming areas which tuna-fishing enterprises elsewhere in the Pacific islands have encountered.



Status of American Samoa Shipments of Fishery Products to the United States

Certain questions have been raised regarding the status of American Samoa shipments of fishery products to the United States. Since a United States business firm may lease the tuna cannery situated in American Samoa, the possibility of such shipments may develop. In order to establish the status of such shipments and of fishery products landings at American Samoa ports by vessels of foreign registry, the Special Assistant to the Under Secretary of State requested an expression of opinion from the Commissioner of Customs. The reply by the Commissioner of Customs points out that:

(1) "...Canned tuna brought into the United States from Samoa is not subject to customs duties because it is not imported from a foreign country...."

(2) If legislation provided for a quota on fresh and frozen tuna imports into the United States, "it would not apply to imports into American Samoa because American Samoa is not a part of the customs territory of the United States." However, "whether or not a quota on 'imports' of tuna would apply to shipments from Samoa of tuna landed there by a foreign country would depend on the answer to the question whether shipments from Samoa are 'importations' for tariff purposes. Since American Samoa is a possession of the United States, it is not a foreign country and shipments therefrom would not be importations into the United States, if the merchandise had actually been imported into Samoa as distinguished from passing through Samoa in transit...."

(3) "Except as otherwise permitted by treaty or convention, section 4311 of the Revised Statutes (46 U.S.C. 251), as amended by the Act of September 2, 1950 (64 Stat. 577), prohibits a foreign-flag vessel, whether documented as a cargo vessel or otherwise, from landing in a port of the United States its catch of fish taken on board on the high seas or fish products processed therefrom, or any fish or fish products taken on board such vessel on the high seas from a vessel engaged in fishing operations or in the processing of fish or fish products. The Bureau (of Customs) is of the opinion that the statute does not apply to the landing of fish or fish products in any port of American Samoa. Accordingly, a Japanese flag mothership or fishing vessel, whether proceeding as such or as a cargo vessel direct from fishing grounds on the high seas, is not prohibited thereby from landing in American Samoa fresh or frozen tuna fish taken on the high seas, nor does such law prohibit a United States flag vessel from landing at American Samoa such a fish cargo acquired on the high seas by direct transfer from a Japanese flag mothership."



U. S. Canned Packs of Selected Fishery Products, 1952

CALIFORNIA SARDINES (PILCHARD): The 1952 pack of California sardines (pilchard) of 106,746 standard cases was valued at \$918,072 to the canners. Compared

Table 1 - California Sardine Pack by Style of Pack, 1952 (Preliminary)			
Style of Pack	Quantity	Value to Canners	Avg. Price Per Std. Case ³
	Std. Cases ⁴	\$	\$
Natural, without sauce or oil ¹ ...	34,933	251,545	7.21
In tomato sauce ...	67,001	614,267	9.17
Other ² ...	4,812	52,260	10.36
Total	106,746	918,072	8.60

¹/INCLUDES A SMALL PRODUCTION OF FILLETS.

²/INCLUDES SPECIAL PACKS OF SARDINES IN MUSTARD SAUCE, IN OLIVE OIL AND TOMATO SAUCE, AND FILLETS IN A SPECIAL SAUCE.

³/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 1-LB. (15 OUNCES NET) OVAL CANS.

Table 2 - California Sardine Pack by Can and Case Size, 1952 (Preliminary)			
Can and Case Sizes	Quantity	Value to Canners	Avg. Price Per Case
	Actual Cases	\$	\$
1-pound cans:			
15 ounces net, oval (48 cans)	65,420	588,681	9.00
15 ounces net, tall (48 cans)	35,291	242,014	6.86
8 ounces net (48 cans)	6,630	54,013	8.15
5 ounces net (100 cans)	3,917	33,364	8.52
Total	111,258	918,072	-

with 1951, this was a decrease of 96 percent in quantity and 95 percent in value. Sardines were canned in 26 plants in California in 1952. Pilchard fishing in 1952 was almost a complete failure—the worst season in 37 years.¹/

Table 3 - California Sardine Pack, 1942-52			
Year	Quantity	Value to Canners	Avg. Price Per Std. Case ²
	Std. Cases ²	\$	\$
1952 ¹ ...	106,746	918,072	8.60
1951	2,864,984	19,362,744	6.76
1950	5,070,805	26,345,609	5.20
1949	3,768,212	21,334,825	5.66
1948	2,654,149	21,892,893	8.25
1947	1,652,592	16,538,375	10.01
1946	2,977,170	19,895,649	6.68
1945	3,765,981	15,346,472	4.08
1944	3,650,919	15,225,919	4.17
1943	3,354,697	14,352,359	4.28
1942	3,744,624	15,509,964	4.14

¹/PRELIMINARY

²/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 1-LB. (15 OUNCES NET) OVAL CANS.

¹/SEE COMMERCIAL FISHERIES REVIEW, FEBRUARY 1953, P. 36.

Canners received an average price of \$8.60 per standard case in 1952 (table 2), an increase of \$1.84 over the 1951 price. The 1952 average price was the highest received by the canners since 1947, when it reached a record price of \$10.01 per case.

Table 3 indicates the trend in production in the period since 1942. The year-to-year fluctuation became more pronounced starting in 1946 and continued up through 1952.

* * * * *

MACKEREL: The United States canned mackerel pack (including jack mackerel) in 1952 amounted to 1,525,353 standard cases, valued at \$11,362,697 to the packers (table 1). This was an increase over the 1951 pack of 45 percent in quantity and 82 percent in value. The pack was up 46 percent in California and 39 percent in

Table 1 - U. S. Canned Mackerel Pack by State and Style of Pack, 1952 ¹				
State	Style of Pack	Quantity	Value to Canners	Avg. Price Per Std. Case ²
		Std. Cases ⁴	\$	\$
Maine	Natural	2,022	16,584	8.20
Massachusetts and Maryland	Natural	20,098	235,837	11.73
California ²	Natural	1,479,099	10,817,944	7.31
	In tomato sauce ³	24,134	292,332	12.11
Total		1,525,353	11,362,697	7.45

¹/PRELIMINARY. ²/INCLUDES JACK MACKEREL PACK. ³/INCLUDES A SMALL PACK IN A SPECIAL SAUCE.

⁴/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 1-POUND CANS TO THE CASE, EACH CAN CONTAINING 15 OUNCES.

the Atlantic Coast States. In 1952 mackerel was canned by 28 plants in California, 4 plants in Maine, 2 in Massachusetts, and 1 in Maryland.

The bulk of the mackerel canned was put up in 15-ounce cans and packed 48 cans to the case (table 2). This size pack comprised 95 percent of the total production in 1952.

Table 2 - U. S. Canned Mackerel Pack, by Size of Container, 1952¹

Can and Case Size	Quantity	Value to Canners	Avg. Price Per Case
15 ounces net (48 cans)	Actual Cases 1,472,750	\$ 10,744,066	\$ 7.30
15 ounces net (24 cans)	6,947	28,227	4.06
7½ ounces net (48 cans)	26,037	112,185	4.31
5 ounces net (100 cans)	36,620	320,160	8.74
Other sizes (converted to standard cases)	10,682	158,059	14.80
Total	1,553,036	11,362,697	-

¹/PRELIMINARY.

The 1952 production of 1,525,353 standard cases was the second highest in recent years, exceeded only by the 1947 pack of 1,754,950 standard cases (table 3). The pack of canned mackerel in California has maintained a good level while pro-

Table 3 - U. S. Canned Mackerel Pack, 1942-52

Year	California			Atlantic Coast			Total		
	Quantity	Value to Canners	Avg. Price Per Std. Case ²	Quantity	Value to Canners	Avg. Price Per Std. Case ²	Quantity	Value to Canners	Avg. Price Per Std. Case ²
1952 ³	Std. Cases ³ 1,503,233	\$ 11,110,276	\$ 7.39	Std. Cases ³ 22,120	\$ 25,421	\$ 11.41	Std. Cases ³ 1,525,353	\$ 11,362,697	\$ 7.45
1951	1,032,581	6,066,011	5.87	15,937	193,213	12.12	1,048,518	6,259,224	5.97
1950	1,393,492	6,959,616	4.99	63,556	532,200	8.37	1,457,048	7,491,816	5.14
1949	916,810	5,766,415	6.29	133,117	1,062,515	8.13	1,049,927	6,848,930	6.52
1948	1,018,973	7,541,931	7.40	262,219	2,308,903	8.81	1,281,192	9,850,834	7.69
1947	1,477,198	12,571,059	8.51	277,752	2,447,574	8.81	1,754,950	15,018,633	8.56
1946	723,688	5,599,894	7.74	238,465	1,975,397	8.28	962,150	7,575,291	7.87
1945	638,191	3,590,614	5.63	54,557	456,077	8.36	692,748	4,046,691	5.84
1944	992,280	5,096,749	5.14	232,760	1,937,248	8.32	1,225,060	7,033,997	5.74
1943	831,660	4,379,995	5.27	105,591	891,207	8.44	937,251	5,271,203	5.62
1942	616,436	3,000,604	4.87	104,753	692,478	6.61	721,189	3,693,082	5.12

¹/INCLUDES JACK MACKEREL PACK.

²/PRELIMINARY.

³/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 1-POUND CANS TO THE CASE, EACH CAN CONTAINING 15 OUNCES.

duction in the Atlantic Coast States has declined sharply. The mackerel fishery along the Atlantic Coast the past few years has been very poor and the catch has been only a small percentage of former years.

Because of the failure of the sardine fishery in California in 1952, packers in that State have concentrated on packing mackerel. On the other hand, since 1949 mackerel canning on the Atlantic Coast has shown a steady decline due principally to the scarcity of mackerel in the Atlantic.

Demand for canned mackerel in 1952 was considered good and prices were higher than for the past several years. The average canners' price for 1952 in California was \$7.39 per standard case--substantially higher than in 1951 and for any year since 1949. A steady export demand for canned mackerel helped to maintain the price. On the other hand, Atlantic Coast packers sold canned mackerel in 1952 at an average price of \$11.41 per standard case--somewhat lower than the record price of \$12.12 per case received in 1951. The price in 1952, however, was the second highest price on record.

* * * * *

OYSTERS: In 1952, the United States pack of canned oysters totaled 541,126 standard cases, valued at \$7,186,450 to the processors (table 1). This was an

Table 1 - U. S. Canned Oyster Pack, by State, 1952/

State	Quantity	Value to Canners	Avg. Price Per Std. Case ² /
	Std. Cases ² /	\$	\$
North and South Carolina	57,842	806,812	13.95
Alabama	19,257	247,369	12.85
Mississippi	153,477	2,079,152	13.55
Louisiana	198,135	2,559,145	12.92
Washington	99,041	1,316,765	13.30
Oregon	13,374	177,207	13.25
Total	541,126	7,186,450	13.28

1/PRELIMINARY.

2/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS TO THE CASE, EACH CONTAINING 4-2/3 OUNCES (DRAINED WEIGHT) OF OYSTER MEATS.

increase of 16 percent in quantity and 21 percent in value as compared with the 1951 pack. The Atlantic and Gulf States processed 79 percent of the pack, and

Table 2 - U. S. Canned Oyster Pack, by Can and Case Size, 1952/

Can and Case Size	Quantity	Value to Canners	Avg. Price Per Case
	Actual Cases	\$	\$
4-2/3 ounces net (24 cans)	124,060	936,152	7.55
4-2/3 ounces net (48 cans)	373,746	4,923,842	13.17
6-1/2 ounces net (24 cans)	100,401	906,820	9.03
6-1/2 ounces net (48 cans)	16,152	265,640	16.45
Other sizes (converted to standard cases)	12,930	153,996	11.91
Total	627,289	7,186,450	-

1/PRELIMINARY.

the states of Washington and Oregon the remaining 21 percent. Oysters were canned in 16 plants in Mississippi, 14 in Louisiana, 5 in Washington, 4 in South Carolina, 3 plants each in Alabama and Oregon, and 1 in North Carolina.

Table 3 - U. S. Canned Oyster Pack, 1942-52

Year	Atlantic and Gulf States	Pacific Coast States	Total
..... (Standard Cases ² /)			
1952/	428,711	112,415	541,126
1951	334,194	132,140	466,334
1950	371,648	120,742	492,390
1949	338,929	113,989	452,918
1948	273,591	83,489	357,080
1947	318,550	91,937	410,487
1946	261,622	129,213	390,835
1945	220,847	5,117	225,964
1944	273,556	-	273,556
1943	344,931	937	345,868
1942	445,782	77,480	523,262

1/PRELIMINARY.

2/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS TO THE CASE EACH CAN WITH 4-2/3 OUNCES (DRAINED WEIGHT) OF OYSTER MEATS.

Eighty percent of the pack was put up in the 4-2/3-ounce size, 19 percent in the 6 1/2-ounce size, and the remaining 1 percent in other sizes (table 2).

The 1952 canned oyster pack of 541,126 standard cases was the highest since 1942 (table 3). The pack has been maintained at a fairly steady level since the end of World War II.

The packers received an average price of \$13.28 per standard case for the 1952 pack, compared to \$12.72 in 1951, \$14.41 in 1950 and 1949, and \$13.38 in 1948.

* * * *

ALEWIVES: The 1952 U. S. pack of canned alewives amounted to 79,861 standard cases, valued at \$374,680 to the canners (table 1). This is a decrease of 37

Table 1 - U.S. Pack of Canned Alewives, by State, 1952
(Preliminary)

State	Quantity	Value to Canners	Avg. Price Per Std. Case
	Std. Cases ¹	\$	\$
Maryland and			
North Carolina	27,603	134,740	4.88
Virginia	52,258	239,940	4.59
Total	79,861	374,680	4.69

¹/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS WITH A NET WEIGHT OF 15 OUNCES EACH. PRACTICALLY THE ENTIRE 1952 PACK WAS CANNED IN 15-OUNCE CANS.

percent in quantity and 38 percent in value as compared with the previous year.

Alewives were canned in 1952 by 4 plants in Maryland, 10 in Virginia, and 2 in North Carolina.

There has been an almost constant decline in the canning of alewives since the peak year of 1946 (table 2). However, there was a good production in 1951 and a sharp decline in 1952.

Canners received an average of \$4.69 per standard case for the 1952 pack, one percent less than the \$4.73 received in 1951. Since 1942, only in 1949 (\$4.19) and in 1950 (\$4.56) did lower prices prevail. A record-high price (\$6.08) was received by canners in 1946.

Table 2 - U.S. Pack of Canned Alewives, 1942-52

Year	Quantity	Net Weight	Value to Canners	Avg. Price Per Std. Case ²
	Std. Cases ¹	Lbs.	\$	\$
1952 ¹ /	79,861	3,593,745	374,680	4.69
1951	127,760	5,749,200	604,314	4.73
1950	69,568	3,130,560	316,993	4.56
1949	111,994	5,039,730	469,398	4.19
1948	123,134	5,541,030	639,356	5.19
1947	139,816	6,291,720	779,150	5.57
1946	193,980	8,729,100	1,180,197	6.08
1945	131,062	5,897,790	753,769	5.75
1944	135,995	6,119,775	793,254	5.83
1943	112,472	5,061,240	619,213	5.51
1942	77,232	3,475,440	399,555	5.17

¹/PRELIMINARY.

²/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS WITH A NET WEIGHT OF 15 OUNCES EACH.

U. S. Canned Groundfish Flakes Pack, 1942-52

Year	Quantity	Value to Canners	Avg. Price Per Std. Case ²
	Std. Cases ¹	\$	\$
1952 ¹ /	29,333	479,027	16.33
1951	19,639	312,445	15.91
1950	18,490	289,630	15.66
1949	32,365	506,224	15.64
1948	35,014	548,113	15.65
1947	18,560	303,831	16.37
1946	151,886	2,107,446	13.88
1945	157,135	2,332,176	14.84
1944	92,950	1,318,167	14.18
1943	33,318	497,815	14.94
1942	83,729	1,011,382	12.08

¹/PRELIMINARY.

²/CASES OF VARIOUS SIZES CONVERTED TO THE EQUIVALENT OF 48 CANS TO THE CASE, EACH CAN CONTAINING 14 OUNCES.

GROUNDFISH FLAKES: The 1952 pack of canned groundfish flakes in the United States amounted to 29,333 standard cases, valued at \$479,027 to the packers. This was an increase of 49 percent in quantity and 53 percent in value, compared with the 1951 production. Maine and Massachusetts are the only states that produce canned groundfish flakes--canning in 1952 was carried on by 4 plants in Maine and 2 plants in Massachusetts.

Canners received an average price of \$16.33 per case in 1952, an increase of 42 cents per case over 1951, and was exceeded only by the record price of \$16.37 in 1947.



U. S. Production of Menhaden Products

Receipts of menhaden by manufacturers of menhaden products in the United States during 1952 amounted to 1,354,370,160 pounds (2,052,076,000 fish)--see Table 1.

Table 1 - Manufacturers' Receipts of Menhaden and Production of Menhaden Products, 1952 (Preliminary)

States (No. of Plants in Parentheses)	Menhaden Utilized		Products Manufactured				Value of Products to Manu- facturers
	Quantity		Dry Scrap and Meal		Oil		
	Lbs.	No. of Fish	Tons	Quantity	Product Value	Quantity	Product Value
Maine (1) and Massachusetts (3)	26,520,120	40,182,000	2,652	334,060	384,898	177,035	511,095
New York (1), New Jersey (3), and Delaware (2)	470,457,240	712,814,000	49,127	5,893,848	5,072,635	2,353,445	8,247,293
Virginia (5)	97,074,780	147,083,000	10,965	1,422,000	325,332	163,720	1,585,720
North Carolina (10) and South Carolina (1)	189,028,680	286,398,000	19,509	2,536,050	1,037,914	464,266	3,000,316
Florida (3) and Texas (2)	180,946,260	274,161,000	20,002	2,402,048	778,909	316,052	2,718,110
Mississippi (3)	111,205,380	168,493,000	11,873	1,510,530	1,717,714	824,707	2,335,237
Louisiana (4)	279,143,700	422,945,000	29,717	3,727,225	3,419,894	1,428,816	5,156,041
Total (38)	1,354,370,160	2,052,076,000	143,845	17,825,761	12,737,296	5,728,051	23,553,812

1/DOES NOT INCLUDE THE PRODUCTION OF MENHADEN SOLUBLES.

2/A SMALL PRODUCTION OF ACIDULATED SCRAP HAS BEEN INCLUDED WITH THE DRY SCRAP AND MEAL.

3/A GALLON OF OIL WEIGHS 7.74 POUNDS.

This was the fifth successive year that the catch exceeded one billion pounds. The catch of menhaden by fishermen since the founding of the nation has been far greater than that of any other species. Available data for most of the last 79 years indicate that about 38 billion pounds of menhaden were taken for manufacture into meal and oil. Table 2 shows the rapid growth of the menhaden fishery in recent years.

Table 2 - Menhaden Utilized and Production of Menhaden Products, 1942-52
(Quantity and Value to the Manufacturers)

Year	Menhaden Utilized	Products Manufactured						Value of Products to Manufacturers	
		Dry Scrap and Meal		Acidulated Scrap		Oil			
		Quantity	Value	Quantity	Value	Tons	Gallons ²		
1952	1,354,370,160	143,845	17,825,761	1/	1/	12,737,296	5,728,051	23,553,812	
1951	1,103,914,780	115,464	13,279,523	1/	1/	12,537,115	9,771,154	23,650,677	
1950	1,000,497,734	103,365	12,864,751	1/	1/	10,209,958	5,866,554	18,731,305	
1949	1,072,630,265	113,393	17,813,339	1/	1/	8,293,911	3,407,510	21,220,849	
1948	1,007,888,840	104,058	11,560,914	1/	1/	8,763,939	10,132,179	21,693,093	
1947	948,155,592	98,602	10,883,852	632	26,863	8,473,371	11,425,497	22,336,212	
1946	916,013,079	94,622	8,605,118	2,022	78,475	9,758,648	9,033,032	17,716,625	
1945	759,073,820	77,451	5,483,377	1,577	62,200	8,335,094	5,656,550	11,202,127	
1944	685,980,170	69,170	4,913,224	2,922	111,104	6,067,111	3,725,498	8,749,826	
1943	615,554,460	66,357	4,766,672	1,555	58,821	5,734,668	3,892,142	8,717,635	
1942	482,643,880	50,504	3,362,279	2,594	80,520	5,128,760	3,200,129	6,642,928	

1/A SMALL PRODUCTION OF ACIDULATED SCRAP HAS BEEN INCLUDED WITH DRY SCRAP AND MEAL.

2/A GALLON OF OIL WEIGHS 7.74 POUNDS.



U. S. Fish Oil Exports, 1952

United States inedible fish oil exports in 1952 declined 12 percent from 1951 and 42 percent from 1950 (see table), reports the March 23 Foreign Crops and Markets of the Department of Agriculture. Shipments amounted to 21,981 short tons, compared with 24,920 and 37,987 tons, respectively, in the 2 previous years. About 94 percent of the total was sold to Europe. More than one-half (11,697 tons) of the over-all total went to the Netherlands. Western Germany purchased almost one-fourth (5,134 tons) of the total.

Inedible Fish Oil Exports by Country of Destination, 1952 with Comparisons					
Country of Destination	1952 ^{1/}	1951 ^{1/}	1950	1949	Average 1935-39
North America:	(Short Tons)				
British West Indies	-	113	-	54	12
Canada	488	1,734	1,696	4,161	458
Cuba	100	71	181	88	155
Mexico	122	63	128	30	45
Other	3	5	8	9	59
Total	713	1,986	2,013	4,342	729
South America	38	110	60	8	96
Europe:				
Belgium-Luxembourg	8	282	20	2,100	8
France	149	1,162	47	57	19
Western Germany	5,134	6,050	5,645	5,645	126
Italy	220	14	7	20	15
Netherlands	11,967	6,024	20,705	5,354	15
Norway	-	4,514	-	-	10
Switzerland	3,140	4,027	8,891	110	15
Other	43	-	34	2	92
Total	20,661	22,073	35,349	13,289	300
Asia:				
Korea	-	-	-	1,323	-
Philippines, Republic of	546	744	540	308	66
Other	20	7	25	38	24
Total	566	751	565	1,669	90
Other	3	-	-	-	19
Grand Total	21,981	24,920	37,987	19,308	1,234

1/PRELIMINARY.

Utilization of U. S. and Alaska Catch of Fishery Products, 1952

Preliminary data reveal that the total catch of fishery products in the United States during 1952 amounted to 4.3 billion pounds (round weight), compared with

Utilization of U.S. and Alaska Catch of Fishery Products, 1948-52 (Round Weight Basis)

Year	Fresh and Frozen	Canned	Cured	Byproducts and Bait	Total
..... (Millions of Pounds)					
1952 ^{1/}	1,518	1,257	100	1,425	4,300
1951 ^{1/}	1,692	1,366	100	1,242	4,400
1950	1,692	1,720	100	1,372	4,884
1949	1,629	1,663	100	1,404	4,796
1948	1,663	1,488	100	1,324	4,575

1/PRELIMINARY.

ery reduced the amount of the 1952 catch processed into canned fish to 29.2 percent as against 31.0 percent in 1951 and 35.3 percent in 1950. The remaining 2 percent of the total catch was cured.



Wholesale and Retail Prices

WHOLESALE PRICES, FEBRUARY 1953: Prices for edible fishery products at the wholesale level were down in February. Unusually mild weather, particularly on the Atlantic Coast, brought about increased fishing activity and a good supply of fish and shellfish. Further declines in meat prices, especially beef, also was a factor in keeping fish prices down. The over-all edible fish and shellfish (fresh, frozen, and canned) wholesale index for February was 108.0 percent of the 1947-49 average (see table)--3.3 percent lower than in January and 0.2 percent less than in February 1952, the Bureau of Labor Statistics of the Department of Labor reports.

Prices dropped for all salt-water fish included in the drawn, dressed, or whole finfish subgroup. On the other hand, fresh-water fish prices rose except for whitefish prices at New York City which also dropped. Compared with a year ago, prices in this subgroup were mostly down. From January to February fresh large drawn offshore haddock at Boston dropped 14.2 percent because of heavier landings. There were slight price declines at New York City for frozen Western halibut and salmon, and a 32.6-percent decrease in whitefish prices. Drawn,

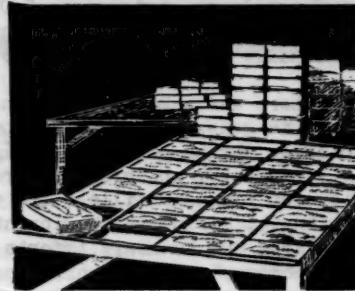


Table 1 - Wholesale Average Prices and Revised Indexes for Edible Fish and Shellfish, February 1953 and Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices				Indexes (1947-49 = 100)			
			Web. 1953/	Jan. 1953/	Feb.	Jan.	Dec.	Feb.		
					1953	1952	1952	1952		
ALL FISH AND SHELLFISH (Fresh, Frozen, and Canned)			108.0		110.5	104.6	104.6	108.3		
<u>Fresh and Frozen Fishery Products:</u>					114.6	119.3	111.3	114.3		
Drawn, Dressed, or Whole Finfish:					112.2	117.5	108.6	118.4		
Haddock, large, offshore, drawn, fresh	Boston	lb.	.11	.13	114.3	131.7	113.3	120.0		
Halibut, Western, 20/80 lbs., dressed, fresh or frozen	N.Y.C.	"	.32	.33	100.1	103.2	104.5	106.2		
Salmon, king, lge. & med., dressed, fresh or frozen	"	"	.49	.49	109.0	110.7	109.5	120.9		
Whitefish, mostly Lake Superior, drawn (dressed), fresh	Chicago	"	.62	.58	152.4	142.5	83.0	156.2		
Whitefish, mostly Lake Erie pound or gill net, round, fresh	N.Y.C.	"	.65	.49	131.4	99.1	96.1	106.2		
Lake trout, domestic, mostly No. 1, drawn (dressed), fresh	Chicago	"	.63	.61	128.1	124.0	124.0	133.2		
Yellow pike, mostly Michigan (Lakes Michigan & Huron), round, fresh	N.Y.C.	"	.50	.41	117.2	96.1	91.4	99.7		
Processed, Fresh (Fish and Shellfish):					120.0	125.2	116.5	108.8		
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.32	.39	107.2	131.0	91.9	125.9		
Shrimp, lge. (26-30 count), headless, fresh or frozen	N.Y.C.	"	.79	.78	124.9	122.5	110.7	102.8		
Oysters, shucked, standards	Norfolk area	gal.	4.75	5.13	117.5	126.8	129.9	111.3		
Processed, Frozen (Fish and Shellfish):					112.3	113.6	110.9	110.9		
Fillets: Flounder (yellowtail), skinless, 10-lb. pkg.	Boston	lb.	.37	.34	129.7	119.2	119.2	143.7		
Haddock, small, skins on, 10-lb. cello-pack	"	"	.21	.25	76.2	92.0	98.5	122.7		
Ocean perch, skins on, 10-lb. cello-pack	Gloucester	"	.24	.24	114.4	114.4	114.4	120.4		
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	"	.79	.79	121.9	121.1	111.8	88.7		
Canned Fishery Products:					98.1	97.6	94.6	99.2		
Salmon, pink, No. 1. tall (16 oz.), 48 cans per case	Seattle	case	19.71	19.71	104.4	104.4	99.1	109.6		
Tuna, light meat, solid pack, No. ½ tuna (7 oz.), 48 cans per case	Los Angeles	"	14.65	14.50	91.5	90.5	90.5	81.2		
Sardines (pilchards), Calif., tomato pack, No. 1 oval (15 oz.), 48 cans per case	"	"	9.25	9.15	106.0	106.2	108.0	102.2		
Sardines, Maine, keyless oil, No. ½ drawn (3½ oz.), 100 cans per case	N.Y.C.	"	7.70	7.45	81.9	79.3	76.6	105.9		

¹/REPRESENT AVERAGE PRICES FOR ONE DAY (MONDAY OR TUESDAY) DURING THE WEEK IN WHICH THE 15TH OF THE MONTH OCCURS.

dressed, or whole finfish prices for February on the whole were down 4.5 percent from January and 5.2 percent below February 1952.

Fresh processed fish and shellfish prices declined 4.2 percent from January to February. During this period haddock fillets at Boston went down 18.2 percent, but fresh large shrimp rose 2.0 percent due to light supplies and a strong market. Compared with a year earlier, prices in this subgroup were 10.3 percent higher, principally due to shrimp prices which were 21.5 percent higher.

There was a mixed trend in the frozen processed fish and shellfish subgroup. Prices in general dropped 1.1 percent from January to February. Flounder fillet and large shrimp prices were higher, small haddock fillet prices were much lower (17.2 percent), while ocean perch fillet prices remained the same. Inventories of frozen flounder fillets and shrimp were light, while haddock fillet supplies were heavy. Cold-storage inventories of frozen groundfish fillets as a whole were very large due to heavy imports in 1952. Most frozen fillet prices were down. This February's frozen shrimp prices were 37.4 percent higher than a year earlier and were responsible for the 1.3 percent over-all increase in the processed frozen fish and shellfish subgroup. Actually frozen flounder, haddock, and ocean perch fillet prices this February were considerably lower than in February 1952.

The canned fishery products subgroup index was the only one to show an increase (0.5 percent) from January to February, but it was slightly lower (1.1 percent) than in February 1952. Canned pink salmon prices remained steady at January levels, but all other canned fish prices in this subgroup rose. Compared with February 1952, canned fish prices showed a mixed trend. Pink salmon and California sardines were down slightly, while Maine sardines were down 22.7 percent. Canned light-meat tuna prices were up 12.7 percent because the market for this product was considerably stronger than a year ago.

ALASKA FISHERIES, 1951

DO YOU KNOW THAT:

The commercial catch of fishery products in Alaska during 1951 totaled 407,726,696 pounds, valued at \$39,260,240--a decrease of 15 percent in quantity but an increase of 25 percent in value as compared with 1950. Salmon (276,588,312 pounds) was the leading species landed and comprised 68 percent of the total catch.



A total of 31,623 persons were engaged in the fishing industry in 1951--considerably more than the 27,544 engaged in 1950.

A total of 226 wholesale and manufacturing establishments operated in Alaska during 1951 as compared with 216 in 1950.

The value of products as prepared for market in 1951 decreased to \$95,915,516, a decline of 4 percent as compared with 1950.

--C.F.S. No. 811



International

NORTH EUROPEAN OVERFISHING CONVENTION OF 1946 COMES INTO FORCE: The Overfishing Convention signed in London in 1946, to prevent depletion of stocks in the North Sea and other areas, was recently ratified by Spain, the last of the twelve signatories to do so, and the Convention therefore comes into force April 5, 1953. The signatories are Belgium, Denmark, the Irish Republic, France, Iceland, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, and the United Kingdom, reports a February 20 U. S. Embassy dispatch from London. Although not a signatory, the German Federal Republic is expected to accede to the Convention, a London press release (Manchester Guardian, February 13) points out.

In a written answer in the House of Commons on February 12, 1953, the British Minister of Agriculture and Fisheries, in announcing that the Convention would come into force on April 5 of this year, stated that by that time it was expected the provisions relating to the retention, landing, and sale of immature fish would have been put into effect, but that most countries would require a longer time to use up stocks of existing nets before the provisions for increasing the minimum size of mesh would come into force. He further stated that the matter would be discussed at the scheduled March 4 conference, as well as the setting up of the Permanent Commission provided by the Convention and which will have the task of considering what further conservation measures are required. The increase of the minimum size of net mesh would also be considered.

The question of the fishing dispute with Iceland was most likely to be aired at the scheduled meeting, since all the disputants in the case (France, Belgium, and the Netherlands have also formally protested the restrictions) are parties to the Convention. However, serious study of the problem will most probably be left to the Permanent Commission.

The press release indicates that "the Convention fixed the size limits below which certain fish should not be retained on board ship, landed, or sold. The United Kingdom has already applied this provision by means of the Sea Fishing Industry (Immature Sea Fish) Order, 1948, and it is expected that all the other signatories will have acted likewise before April 5 if they have not already done so.

"Unrestricted fishing between the two world wars, and the probability that this practice would be resumed, led to the preparation of the Overfishing Convention as a means of preventing the depletion of stocks in the North Sea and other areas."

It is reported that the waters concerned are those parts of the Atlantic and Arctic Oceans lying north of 48° N. latitude and between 42° W. longitude and 32° E. longitude excluding the Baltic.

The news release further states that "the waters covered by the Convention are those of the North Sea, and of the Northern seas away to Greenland, Iceland,

the Faroes, Northern Norway, and Bear Island. The only waters not covered by this Convention in which British deep-sea vessels fish are the Barents Sea and the West Coast of Greenland. The latter is covered by the Northwest Atlantic Fisheries Convention.

"The principal means of conserving supplies will be to fix the minimum permitted size of mesh at 80 mm.—about 3 $\frac{1}{4}$ in. (the present mesh used in British vessels is 2 $\frac{3}{4}$ in.). The result will be a considerable saving of the younger fish of three main species—cod, plaice, and haddock. These will be left to grow and should provide catches of a larger average weight than hitherto. It is estimated that if the provisions of the Convention had been in force during the last four years the housewife would now be getting about 15 percent more haddock, between 14 percent and 15 percent more hake, and smaller increases of cod and plaice.

"It may take between 12 and 18 months before all the fishing vessels of all the signatories are equipped with nets of the new minimum standard. The rate of replacement of fishing nets is fairly rapid, and as the need for replacement occurs the new nets will be supplied. The proposed permanent commission will have no executive powers and no international sanctions are proposed for the enforcement of the Convention. Each signatory will be responsible for ensuring that its fishing industry keeps to the new rules."

FOOD AND AGRICULTURE ORGANIZATION



FISHING-BOAT DESIGN AND EQUIPMENT MEETINGS IN PARIS AND MIAMI: To encourage the exchange of information on latest advances in the design and equipment of fishing boats, the Food and Agriculture Organization of the United Nations will sponsor two meetings—one in Paris, October 12-16 and another in Miami, Florida, November 16-20, 1953.

The new plan of holding the same type of meeting in two places will be tried, FAO said, in an effort to reach the largest possible audience. "Neither experts nor their audience have the time or the money to travel halfway around the world for a single meeting," FAO's Senior Fisheries Technologist pointed out.

FAO has invited all member countries to send official delegates and hopes that commercial firms in all regions will send observers. The Paris meeting was scheduled mainly for Europe, most of Asia and Africa, and the Miami meeting for the American continents and the Pacific.

Designers of fishing boats and manufacturers of equipment are expected to be interested in the meetings. Many of the papers and films to be presented will deal with new and improved craft and equipment of all sorts.

The agenda will be the same at both meetings. Included will be a review of different types of boats from all over the world; discussions of fish handling and processing in factoryships; the shape of boats; construction methods and materials; choice of engines; gear for handling nets; and arrangements for handling the catch on board.

An important contribution to the meetings will be made, FAO believes, by countries often considered less developed in technical fields. For example, FAO pointed out, Chile has much to offer in the mechanization of sailing boats suit-

able for many countries of Latin America and the Far East. Pakistan is the home of fishing craft which FAO experts have described as "probably having the world's best hull shape" and which they believe might teach much to designers in some of the most advanced countries.

The Miami session will also include a joint meeting with the Gulf and Caribbean Fisheries Institute which will hold its annual meeting in Miami at the same time.

NORTHWEST ATLANTIC FISHERIES COMMISSION

THIRD ANNUAL MEETING: The third annual meeting of the Northwest Atlantic Fisheries Commission will be held at Yale University, New Haven, Connecticut, from May 25 to 30, inclusive. The agenda for the plenary meetings includes, among other subjects, the following of general interest:

A report from the Special Committee on Headquarters Site; Report of Special Committee on Commission's Research Program; Report on Haddock Regulations in Subarea 5, including revised Research Program and Proposals for Amendments to Mesh Regulations; and Reports of Panel 1-5 meetings.

Two offers for a site for permanent headquarters were considered at the Second Annual Meeting--Halifax, N. S., and St. John's, Newfoundland. Invitations have since been received from the Municipality of Montreal, and Laval University, Quebec, in Canada. In the United States: University and Municipality of Kingston, Rhode Island; Harvard University, Boston, Mass.; Municipality of Gloucester, Mass.; Durham University, New Hampshire; and Bowdoin College, Brunswick, Maine.



UNITED NATIONS

SEA-WATER POLLUTION CONTROL CONSIDERED DESIRABLE BY SOME NATIONS: International action to reduce the pollution of sea water by oil and other waste materials is considered desirable by a number of governments which have replied to a United Nations inquiry, according to a report prepared for the UN Transport and Communications Commission. Some of the governments reported that pollution has increased in recent years, with resulting damage to fisheries, sea birds, plant life, beaches, and ports. Others indicated that the problem had been controlled by local and national vigilance, a January 19 United Nations Press release reports.

The report (Doc. E/CN.2/134, Nov. 12, 1952) will be considered at the Commission's sixth session which opened on February 2 at the U. N. Headquarters. It summarizes information received in response to an Economic and Social Council resolution of August 1951 inviting governments to send to the UN the results of studies on pollution of sea water. Results of the studies will be given to the Intergovernmental Maritime Consultative Organization when it starts functioning as a specialized agency of the United Nations.

The report outlines some of the studies made and steps taken by national governments, summarizes suggestions by a number of governments regarding technical methods for reducing discharge of oily wastes from ships, and reviews previous international action on the problem.

In its reply the United States said it had insufficient evidence that pollution of the high seas was serious enough to require international action, but expressed readiness to participate in joint studies. National and municipal laws against pollution are rigidly enforced in the United States, the reply stated.

WHALING

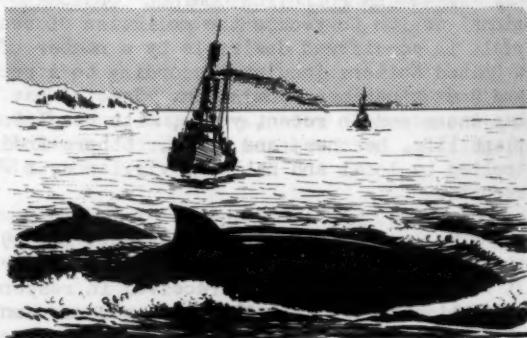
ANTARCTIC SEASON FOR 1952/53 ENDED MARCH 16: The 1952/53 pelagic (open sea) season for baleen whales in the Antarctic ended on March 16, just 75 days after the opening on January 2. The decision on the closing date reached by the Committee of International Whaling Statistics constitutes a forecast by that body that the maximum-catch quota of 16,000 blue-whale units will have been attained by that date. Although the 1952/53 season will be 11 days longer than last year's short season of only 64 days, the expeditions participating numbered only 16 against 19 in 1951/52. The 3 factoryships withdrawn from service this season were Norwegian vessels, states the March 16 Foreign Crops and Markets of the U. S. Department of Agriculture.

Antarctic Whaling Expeditions, 1952/53		
Nationality	Factoryships	Catcher Boats
Norway	7	95
United Kingdom	3	48
Union of South Africa	1	16
Japan	2	30
Panama	1	16
Netherlands	1	12
U.S.S.R	1	15
Total	16	240

Seven countries are engaged in the 1952/53 operations, the same as last season (see table).

Production of whale oil from the current season's Antarctic pelagic catch probably will approximate the 383,000 short tons produced in 1951/52, since the 16,000 blue-whale-unit quota remains unchanged. However, a small increase in output may result from the longer season due to the fact that whales grow fatter as the season progresses. In addition to the 1951/52 Antarctic pelagic output, some 25,000 tons of whale oil was produced from whales killed by catcher boats operating from 3 South Georgia shore stations. Data regarding production of whale oil in areas outside the Antarctic in 1952 are not yet available. This production, however, usually constitutes only about 10 percent of the total world output.

The catching of sperm whales is not subject to the same strict international regulations that govern baleen whales, although some limitations have been introduced. If preliminary data regarding the production of sperm oil by Antarctic expeditions prior to the opening of the baleen season on January 2, 1953, can be considered a criteria of the entire season's output, production of sperm oil will drop sharply in 1952/53. Of the 12 expeditions for which information is available, sperm oil output was only about one-third of the quantity produced as of the comparable date in 1952. Total Antarctic production of sperm oil in 1951/52 was about 53,500 short tons, including some 1,200 tons from South Georgia shore-station operations. Production of sperm oil in "other" areas in 1952 probably will be less than half the 71,000 tons produced in these areas in 1951.



INTERNATIONAL PACIFIC HALIBUT COMMISSION

MAJOR CHANGES IN THE NEW UNITED STATES-CANADIAN PACIFIC HALIBUT CONVENTION: There are several major changes in the revision of the "Convention between the United States of America and Canada for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea," which was signed in Ottawa on March 2, 1953:

1. The title has been altered to distinguish the new Convention from other fisheries treaties. The change in name from "The International Fisheries Commission" to the "International Pacific Halibut Commission," is to enable ready identification and to distinguish the Commission from other fishery commissions on which Canada and the United States are represented.
2. The number of commissioners has been changed. In the present revision the number of commissioners has been increased from 4 to 6--3 from each country.
3. A change has been made in the open fishing season for halibut. Under the new treaty the Commission has power to establish more than one open season. There was some doubt as to the Commission's power to do this under the former treaty. The granting of this power was considered necessary in order to allow the Commission to extend fishing over more than one period of time. The scientists of the Commission advanced the hypothesis that during a concentrated short season some fishing grounds might be underexploited. The experiment of dividing up the season will be useful to determine to some extent whether this hypothesis is correct.
4. Under the former treaty the Commission had power to limit or prohibit the incidental catch of halibut taken by vessels fishing for other species during the closed season only. Additional power has now been given to the Commission so that it has the right also to regulate such incidental catch during the open season.

The Convention between Canada and the United States of America for the preservation of the halibut fishery of the North Pacific Ocean and the Bering Sea was first negotiated in 1923. It was revised in 1930 and again in 1937, and during the past three years negotiations have taken place between the two countries which have led to the present revisions.

The first treaty limited the Commission's powers to regulate the fishery by a three-month closed season, and this was ineffective in stemming the decline. Evidence of the success of the Commission's work following the second revision of the Convention is shown in the increase in United States-Canadian halibut landings. The total Canadian-United States catch in 1952 from the areas under regulation was 62,282,000 pounds--the largest catch in 37 years, a press release from the Canadian Department of Fisheries points out.

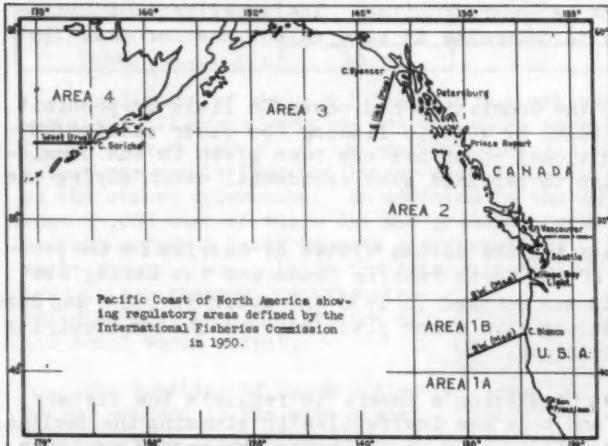
The year 1888 marked the beginning of the commercial halibut fishery on the West Coast. The completion that year of transcontinental railroads opened eastern markets, especially Boston, to Pacific halibut. From a catch of 1,500,000 pounds in that year the take increased steadily until 1908. Approximately 50,000,000 pounds annually were taken from then on.

To achieve this production the industry had to use more efficient equipment with bigger and stronger ships. Diesel engines reduced costs considerably so that it was possible to make distant fishing a profitable operation. Even with the increased fishing effort there were fluctuations of millions of pounds from year to year.

Owing to the character of halibut which live along the ocean bed and because of the uneven bottom of the fishing grounds, ground lines are most effective for halibut fishing. The unit of gear, which is the amount of gear that can be easily operated by one fisherman, is known as a "skate." It consists of six fairly heavy ground lines, each about 50 fathoms long and to each of which, at 13-foot intervals, 5-foot lines are attached which carry a single hook at the end. At one time fishing was conducted from dories but they became outmoded and finally were prohibited in the fishery. With the skate as a measure of efficiency, it was shown that where formerly the average catch per skate was several hundred pounds, the catch had fallen to under a hundred pounds. In addition, where formerly the fishermen were able to get their fish in a 600-mile area, the fishery now covered an area of almost 1,800 miles.

When the Commission was first established, the fishery had fallen off considerably. Evidence of overfishing was apparent. A much greater fishing effort was required to bring in approximately the same amount of fish. It was relatively easy to establish a unit of catch as the fishing method was standard throughout the industry.

The original purpose of the Commission was to eliminate fishing during the halibut spawning season from November to February and to undertake an intensive investigation into the life history of the halibut. The new treaty concluded in 1930 set up regulatory power to rebuild the fishery.



purpose—the gradual rebuilding of the halibut supply to a higher level of productivity. The Commission's achievements have shown what can be accomplished when two countries cooperate fully to reach a common goal.

The question of port privileges has been a consideration since the Commission was first established. Formerly the two Governments had to pass enabling legislation each year to renew the agreement. However, in March 1950 an international convention was signed allowing reciprocal port privileges for halibut fishing vessels on the West Coast. Instruments of ratification, exchanged later in 1950, brought the Convention into force. As a result Canadian and United States halibut fishermen are assured of yearly reciprocal privileges in the landing of catches for transshipment, and obtaining supplies, repairs, and equipment.

Since that time the Commission has regulated the areas to be fished, changing the quota for each area as seemed advisable at the time. It established nursery areas where fishing was completely prohibited. It set a quota for the entire fishery which at present averages about 54,000,000 pounds, but it does not interfere with the rate of fishing.

The International Fisheries Commission seems to be successfully achieving its



British Honduras

FISHERY PRODUCTS EXPORTS, 1952: Exports of marine products from British Honduras in 1952 totaled about 337,719 pounds, valued at BH\$109,330 (US\$76,530),

British Honduras Exports of Fishery Products, 1952 and 1951						
Product	1952			1951		
	Lbs.	BH\$	US\$	Lbs.	BH\$	US\$
Fish, fresh	52,593	9,069	6,348	25,616	3,401	2,380
Fish, dried	56,559	9,336	6,535	25,064	3,530	2,471
Spiny lobster, whole	49,717	10,539	7,377	177,278	30,543	21,380
Spiny lobster tails	178,850	79,943	55,960	149,293	52,399	36,680
Other marine products	-	443	310	-	26	18
Total	337,719	109,330	76,530	377,251	89,899	62,929

reports a recent dispatch from Belize. This is a 10 percent drop in volume but a 22 percent increase in value as compared to 1951 when exports amounted to 377,251 pounds, valued at BH\$89,899 (US\$62,929).



Canada

VIEWS ON DEFINITION OF TERRITORIAL WATERS: There is currently before the Canadian Parliament, Bill No. 44 (Letter E of the Senate), "An Act to Protect the Coastal Fisheries," the purpose of which is to completely revise the present Customs and Fisheries Protection Act, which has been in effect since 1868 and was last revised in 1913. The proposed changes appear chiefly to be directed to providing more adequate definition of what is to be considered a fishing vessel, to define in more detail the authority of Protection Officers, and to extend the authority of the Government to license foreign fishing vessels to enter Canadian territorial waters, according to a February 18 U. S. Embassy dispatch from Ottawa.

Canadian territorial waters are defined in the new bill as "any waters designated by an Act of the Parliament of Canada or by the Governor in Council as the territorial waters of Canada; or any waters not so designated being within three marine miles of any of the coasts, bays, creeks or harbors of Canada and includes the inland waters of Canada." Under the authority of this provision it would be possible for the Canadian Government, at such time as it might deem opportune, to designate as "Canadian territorial waters" any coastal waters. In the debate in the House, in fact, before the bill was referred to the Standing Committee on Marine and Fisheries, various members expressed the desirability of extending Canadian territorial waters as far out as possible in order to preserve the inshore fisheries.

In the subsequent Committee hearings the Canadian Minister of Fisheries emphasized that the Bill gave the Government the power to designate territorial waters but did not alter the practice as to territorial waters. "The practice we have followed is continued," he said, "but it does provide authority to change the practice if it is ever decided by the Government to do so." Some countries, he added, had hastily, perhaps too hastily, attempted to apply the principles which they thought the judgment in the United Kingdom-Norway dispute announced, but the Canadian Government was proceeding more cautiously because of the complexity of the problems involved, and had set up an interdepartmental committee to study the implications of the judgment of the Hague Court and the subsequent steps taken since by various countries.

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NEWFOUNDLAND'S FROZEN FILLET EXPORTS TO THE UNITED STATES SLUMP: Newfoundland exporters of frozen fillets to the United States report a marked slump in the demand for their products. Large stocks are accumulating in cold-storage plants in St. John's, according to recent Newfoundland press releases. Although stated to be in part seasonal, large shipments to the United States from Iceland and Norway and a decline in United States retail meat prices, have been mainly responsible for this trend in frozen fillets. Reports that the Boston market price of cod fillets has dropped and that there are large stocks of fillets in cold storage in the United States caused some apprehension. Newfoundland ex-vessel prices for fresh haddock and cod have dropped $\frac{1}{4}$ Canadian cent a pound. Although the present slump is the most severe ever to hit Newfoundland exporters to the United States market, there is, nevertheless, no good reason to doubt that a recovery can be attained later in the year, points out the St. John's Evening Telegram.

NEWFOUNDLAND HERRING MARKET WEAK: Herring fishing for this season is now over in the Placentia Bay area; the catch is reported to have been "poor." Newfoundland shippers of herring are understood to be having a hard time in disposing of their stocks at prices that will allow a small profit or even pay costs. It is reported there are fair stocks of herring on hand. Also, prices are very weak. The first of this season's Norwegian herring pack is scheduled to reach the United States early in March and Norwegian prices are so low that most Newfoundland packers cannot compete, according to a February 26 U. S. consular dispatch from St. John's.

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NEW NEWFOUNDLAND FILLETING PLANT PLANNED: The construction of a new filleting and freezing plant at Fortune Bay, Newfoundland, was expected to get under way late in February, reports a February 20 consular dispatch from St. John's. It is anticipated that construction will be completed in less than 5 months so that production should commence in July. The Government announced that this project would be financed by both Canadian and United States private capital, most of which would come from the United States.

An eventual annual output of 10 million pounds of frozen fishery products is expected, and a full line is contemplated, including frozen shellfish. A process called "flash freezing" will be used for freezing the fish. The entire output of this Fortune Bay plant will be marketed frozen in the United States by a Georgia firm.

A subsidiary plant to produce fish meal is also planned.

This will be the third filleting plant to be established in Newfoundland since early in 1952. One at Fermeuse commenced operations in mid-1952 and has a daily capacity for cutting and freezing 50,000 pounds of fillets (it has already produced as high as 35,000 pounds in an 11-hour shift). Storage capacity of this plant is 2½ million pounds. On November 30, 1952, there were 1,750,000 pounds of frozen fishery products (mostly cod fillets) on hand. A fish-meal producing plant is to be added to the Fermeuse plant in the future, with a capacity of 5 tons of meal per hour. Filleters are reported to be receiving C\$0.82 an hour and general laborers C\$0.72 an hour.

Another plant commenced operation at Gauloise, Hermitage Bay, in the fall of 1952. This plant's products are distributed in the United States by a Boston fishery firm.

Denmark

FISHERIES ATTACHE TO UNITED STATES TO ENCOURAGE SALE OF FISHERY PRODUCTS:

In order to establish contacts to build up a United States market for fishery products, the Danish Ministry of Fisheries on February 28 announced the appointment of Erik Jacobsen to fill the newly-established post of Fisheries Attaché in the United States. Primarily he will endeavor to encourage the sale of frozen brook trout and fillets, but will also promote the sale of all fishery products from Denmark, Greenland, and the Faroe Islands, a March 12 U. S. Embassy dispatch from Copenhagen declares.

Interviewed by the Danish press on March 1, the new Fisheries Attaché emphasized that he will not be working as a diplomat but primarily as a businessman, helping Danish exporters and producers. He sees his job as temporary, and useful only until Danish exporters have established a foothold in the United States market.

The office of the new Fisheries Attaché will be in New York City at the Building of the Danish Consul General. He is expected to leave for New York City early in April.



French Morocco

FISHERIES TRENDS, 1952: The 1952 fisheries catch for French Morocco was 103,000 metric tons as against 83,000 tons in 1951, according to an outline of the present fisheries situation presented by the French Zone Director of Commerce at a meeting of the Central Fisheries Committee on February 25. The canneries only absorbed 65,000 tons of the 1952 catch, and the balance went to fish meal and oil plants.

Canned fish exports to areas outside the French zone continued to drop sharply: 123,000 cases for 1952/53 as against 380,000 for 1951/52. France remained a relatively faithful customer, but Portuguese competition was strong in other markets, reports a March 2 U. S. consular dispatch from Tangier. French Morocco will increase its efforts to sell pilchards in the Middle East and Pakistan at low prices and to open outlets in the Soviet bloc. The French Moroccan canners are attempting to obtain cheaper oil and tin from France and French West Africa in order to reduce export prices for canned fish to meet competition.

Increasing interest is shown in the possibilities for tuna. Reports indicate that an exploratory cruise is searching for tuna-fishing areas between Agadir and Cape Verde.

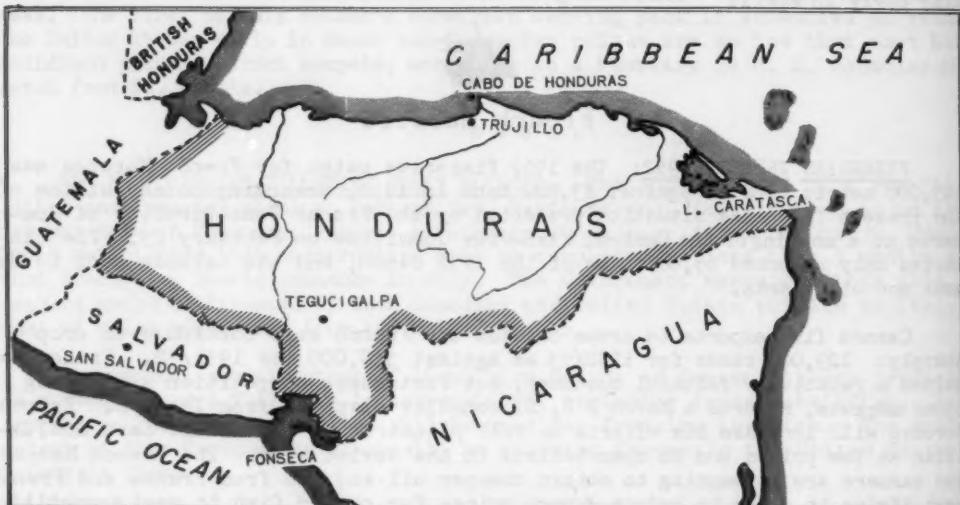
A letter received from the Director of L'Institut Scientifique des Pêches Maritimes du Maroc (Scientific Marine Fisheries Institute of Morocco), referring to the news item which appeared in the October 1952 issue of Commercial Fisheries Review (pp. 61-2), states that a crisis exists in the Moroccan sardine industry. However, this crisis is a result chiefly of marketing difficulties attributed to the high price of Moroccan sardines in oil. As far as the catch of sardines is concerned, there has been a steady increase in recent years. The abundance of sardines in 1952 has resulted in the development of the fish meal and oil industry, in addition to the canning industry.

The Institute concludes that the sardine resources off Morocco are quite large and that any change of area for sardines, attributed to hydrological conditions, has taken place within the Atlantic zone of Morocco, which is hydrologically unique. According to the Institute, there has never been any migration of sardines towards Portugal. Besides, the Portuguese have complained in 1951 and 1952 of a decline in the sardine fishery.



Honduras

SHRIMP FISHING CORPORATION PLANNED BY TEXAS BUSINESSMEN: The organization of a corporation primarily to catch and freeze shrimp off the Caribbean coast of Honduras is being planned by a group of Dallas and Fort Worth (Texas) businessmen, states a U. S. Embassy dispatch from Tegucigalpa dated February 17. The group arrived in Tegucigalpa recently. The plan calls for a minimum capitalization of US\$12,500 backed by cash and letters of credit at Tegucigalpa banks in the sum of US\$100,000.



The group is interested in obtaining an exclusive concession to explore the possibility of shrimp fishing on the North Coast for a period of one year, with a permit to increase the period to ten years should shrimping prove feasible. They should not experience much difficulty in obtaining their request due to the fact that there are no commercial fishing companies in Honduras at present. One freezer vessel, now in Costa Rica and two shrimp boats from Corpus Christi, Texas, are scheduled for use in this venture.



Hong Kong

FISHING FLEET INCREASED BY REFUGEE VESSELS FROM COMMUNIST CHINA: Hong Kong's fishing fleet during 1952 increased by 763 vessels. These vessels are alleged to have fled from Chungshan (across from Macau), Communist China, to the various ports in the Colony, reports a January 26 U. S. consular dispatch from Hong Kong.

JAPANESE TRAWLERS PERMITTED TO LAND FISH: Three Japanese trawlers arrived in the Colony during December with cargoes of fish for the Fish Cooperative Market, despite strenuous objections from local fishermen. These trawlers are fishing in nearby Tongking Bay and from time to time two of the Japanese trawlers will be permitted to land their catch at Hong Kong and receive in exchange oil and other supplies of equivalent value. The catch is not to exceed 3,000 piculs (400,000 pounds) a month or about 12 percent of the average monthly local catch. It is not expected that these landings will cause the local fishing industry serious inconvenience. These vessels landed mostly snapper and red sea bream; and are expected to augment the supply of fish for Hong Kong's population and help keep prices down. They will also reduce the dependence on supplies of fresh-water fish from the China mainland.



India

DANISH TRAWLERS FISH SUCCESSFULLY IN INDIAN WATERS: The two Danish trawlers bought in 1950 by the West Bengal Government of India have caught about 1,500,000 pounds of fish in 37 trips from December 1950 to January 1953, according to a Calcutta press release (Amrita Bazar Patrika, February 8). The vessels sailed out of Calcutta and fished in the Bay of Bengal. The catches were considered small as emphasis was placed on experimental and exploratory work in the initial stages. Nevertheless, says the article, the catches per day compared very favorably with those in other well-known fishing grounds of Europe and America. Intensive fishing operations were started after the monsoon in 1952. In addition to the Indian crew and trainees there are four Danish personnel on the fishing staff.

The catch during the last trip (111,160 pounds) was the highest even though the number of days spent in actual fishing was the lowest. The total catch November 1952-January 1953 was 410,084 pounds as against 1,123,122 pounds during the previous 23 months.

Consumers in Calcutta "seem" to be gradually "becoming more accustomed to sea fish." The ocean fish is sold in a number of shops in Calcutta and Howrah and is handled by a Government agent, reports a February 12 U. S. consular dispatch from Calcutta.

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INDO-JAPANESE JOINT FISHING COMPANY PLANNED IN BOMBAY: A joint fishing company with headquarters in Bombay is being planned between a Bombay firm and a Tokyo firm, according to a Bombay press report (Evening News of India, February 2). Negotiations are now under way.

It is reported that both firms will have equal interests in the proposed new company. It is expected that in the initial stages the operations will be

restricted to the Bombay coast but later be expanded to cover the entire Indian coast. The Japanese firm has a trawler, Taiyo Maru No. 17, currently engaged in deep-sea fishing off the Bombay and Saurashtra coasts.

The first stage of the negotiations was carried on in Bombay. A representative of the Indian firm is now in Japan and will continue the negotiations, a February 11 U. S. consular dispatch from Bombay points out.



Italy

AID TO FISHING FLEET: The Italian Government plans to assist the fishing fleet in the conversion of 2,600 vessels from gasoline engines to Diesel propulsion, reports the February 1953 World Fishing, a British trade magazine. To insure that the plan will be carried out, the Government will provide each boat credit up to 1.5 million lire (US\$2,400) at a low rate of interest and a long period of amortization.

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SICILIAN FISHERIES: Imports Threaten Domestic Industry: Increased imports of canned fish from Japan and Peru will cause a grave crisis in the Sicilian fishing industry, according to an official of the Sicilian Regional Ministry of Fisheries. Recent trade treaties signed by Italy with both these countries allow for increased Italian imports of canned fish in exchange for other products. The amount envisioned in both treaties, plus the fish imports under the terms of present agreements with other countries, could total about 6 or 7 times the average Italian annual consumption of fish, according to the official quoted. There is considerable criticism of the Central Government in Sicily because of these new treaties and the Regional Government has gone on record in Rome against the new trade agreements, reports a January 30 U. S. consular dispatch from Palermo.

Sicily's fishing interests have strongly advocated that only needed quantities of fish be imported to cover the normal demand of the Italian market. They are demanding high tariff barriers on canned fish to keep the price of imports safely out of the price range of domestic fish. The Federation of Sicilian Industries, in fact, protested against a recent importation from Japan of 1,250 cases of canned fish classified as "tuna," which instead turned out to be "palamito," said to be somewhat similar to tuna but of an inferior quality to that of the domestic tuna marketed here.

It is reported that Sicilian manufacturers of canned fish products have marketed less than 12 percent of their latest production, due to the fact that dealers and outlets are still heavily stocked with these products. As a result of this lag some producers who had borrowed money from banks have been unable to reimburse the amounts of their loans and are in a serious and difficult position. This critical situation has come about even though the effect of the above-mentioned new trade treaties has not yet been felt.

Tuna Fishing: The tuna-fishing season which ended in June 1952 was a very poor one, both because the total catch was small and because the average size of fish was smaller than the standard for canning. Unfavorable weather conditions during the last six months of 1952 hampered fishing operations.

Fishing Legislation: Discussions have been held on a proposed law to set up in the more important Sicilian fishing centers offices for the purpose of coordinating matters involving the fishing industry, and to obtain more accurate data regarding the catch and canning production. Present statistics are incomplete and inaccurate and appear to be one of the important reasons why the Italian Government negotiated the impugned import treaties with Japan and Peru. The Government was under the impression that Italian production would merely be supplemented, rather than swamped, by these imports.

The Sicilian Regional Gazette of October 24, 1952, contains Law No. 50, in the interests of individual fishermen and fishing companies and cooperatives, the members of which have their residence and exercise their activities on the Island of Sicily. Special credits are granted persons in these categories:

- (1) For the purchase of newly-built motor fishing boats of not less than 20 and not more than 40 tons gauge.
- (2) For equipping with engines, modernizing, and repairing any type of fishing boats.
- (3) For purchasing equipment which is part of the motor fishing boats, including nets, lamps, and other instruments allowed by law, as well as fittings which permit the detection of fishing banks, and the installation of wireless transmitters.
- (4) For installation of equipment to conserve fish on board.
- (5) For setting up storerooms to preserve the fish and to transfer it to appropriate warehouses which should also have sufficient space for the necessary fishing boat supplies as well as other assistance to the fishing industry, including means of sea or land transportation to forward fish in refrigerated trucks or boats.

Financial aid is planned to the extent of 30 percent of the prospective expense if it is established to be in accordance with the correct cost, but not to exceed the amount of 5 million lire (US\$80,000) if it involves an individual fisherman or associated fishermen, and not to exceed 50 percent of the expenses up to the amount of 8 million lire (US\$130,000) for fishing cooperatives.



Japan

FROZEN COOKED TUNA LOINS EXPORTED TO U. S. FOR CANNING: For the past year Japan has been exporting experimental lots of frozen cooked albacore tuna loins to the United States. This product has been processed by canners along the west coast of the United States into canned white meat tuna, with a large percentage packed as chunk style. The canned yield is about 112 cases (48 No. 1/2 tuna cans packed with $5\frac{1}{2}$ oz. of meat) per short ton.

In Japan the loins are prepared from albacore which have been beheaded, gutted, and cooked for 30 minutes (depending on size). Then the tail and fins are removed, the fish are skinned, and four fillets are cut from the backbone. After removing or trimming off the dark meat, the fillets are frozen 3 to 4 hours (depending on size) until glazed. Each fillet is finally wrapped in parchment paper and packed in paper or wooden boxes, 50 pounds to the box. Recovery of loins from whole fish is estimated at 30 to 40 percent.

Exports through January 1953 totaled about 225 short tons. The price f.o.b. Japan is reported about US\$700 per short ton. At present Japanese plants are not equipped to produce frozen cooked loins for export in commercial quantities, reports a February 13 U. S. Embassy dispatch from Tokyo. They are lacking in freezing equipment.

Some experimental export shipments of frozen raw yellowfin tuna loins have also been reported. In addition, there was a sample shipment of a few cases of frozen precooked albacore tuna hand packed in open half-pound tuna cans. The tuna was not processed nor hermetically sealed. It was shipped to the United States for complete processing and the addition of salt and oil.

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TUNA FISHERY PLANS FOR 1953: Mothership Tuna Fishing: Tentative plans for Japanese mothership tuna-fishing operations in 1953 provide for three fleets, reports a March 3 U. S. Embassy dispatch from Tokyo. Information obtained from news items and other Japanese sources indicate these fleets will consist of:

- (1) Mothership Tenyo Maru (10,000 gross tons) with 30 catcher boats; catch target approximately 16,400,000 pounds in two trips from May through November.
- (2) Mothership Settsu Maru (10,000 gross tons) with 20 to 30 catcher boats; catch target 8,400,000 pounds.
- (3) Mothership Ginka Maru (3,000 gross tons) with 10 to 15 catcher boats; catch target not announced. Some sources state this fleet may not materialize partly because of the excessive cost of converting the Ginka Maru to a tuna mothership.

The fleets are expected to concentrate on yellowfin tuna in equatorial regions, including the Solomon Islands where good results were obtained by one fleet in 1952.

Construction of Large Tuna Boats Planned: Construction of new large tuna boats is being planned for 1953. At least 15 and possibly 20 boats (320 gross tons each) are expected to be financed wholly or in part by the Japanese Government. These boats would be suitable for fishing the more distant tuna grounds from Hawaii southward to the equator and off northeast Australia. Many of the present Japanese tuna boats are less than 150 gross tons. The proposed 1953 construction of the larger tuna boats will supplement that of 10 similar boats in 1952.

Cooperative Sales System for Frozen Tuna: A cooperative sales system for frozen tuna for export to the United States is being discussed in Japanese fishing circles. A number of the leading producers believe that such a system should be patterned after the Tokyo Canned Tuna Sales Company which handles most of the sales of canned tuna by the canners to exporters. This company was organized in May 1952. Its principal purpose is to assist in stabilizing exports, avoid adverse effects in foreign markets, and prevent "dumping," excessive price-cutting, and other undesirable features of competitive trade. Proponents of the cooperative system for the sale of frozen tuna feel it would give support to the existing Japanese Government controls on exports of frozen tuna to the United States by: (1) checking and preventing three-way trading by some Japanese exporters selling to Canada for reshipment to the United States, and (2) checking and preventing exporters from rebating on sales to offset Government check prices on exports to the United States.

Tuna Exports to United States: The Japanese Government on February 16 increased the quota of frozen tuna exports to the United States by 3,000 short tons—from 18,000 short tons to 21,000 tons for the period ending March 31, 1953. Applications for allocations of the additional 3,000 short tons closed on February 18 and totalled 8,800 tons. Allocation of the 3,000 short tons was prorated to 23 applicants. United States demand for canned tuna is not as brisk as for the frozen product. It is reported that the recent increase in the quota for frozen tuna is from 6,000 tons of tuna officially set aside in September 1952 for an anticipated rise in the quota for canned tuna. At that time the quota on frozen tuna was raised from 12,000 to 18,000 tons, but the canned set-aside was not utilized for raising the quota for canned tuna. Hence, a decision has been made by the Government to utilize it in equal portions to the exporters of frozen and canned tuna, i.e., 3,000 tons of frozen tuna (or the equivalent of 150,000 cases of canned tuna, which was the amount by which the quota for canned tuna exports to the United States was raised on February 16—from 1,000,000 cases to 1,150,000 cases).

NOTE: THE UNITED STATES EXPORT QUOTA FOR FROZEN TUNA HAS BEEN REPORTED IN BOTH METRIC AND SHORT TONS, BUT RECENT INFORMATION INDICATES THAT THE QUOTA HAS ALWAYS BEEN REPORTED BY THE JAPANESE GOVERNMENT ON A SHORT-TON BASIS.

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SWORDFISH EXPORTS TO UNITED STATES, 1952: Japanese frozen swordfish exports to the United States in 1952 amounted to 9,910,731 pounds, valued at US\$2,581,745, the Ministry of International Trade and Industry reports. This is approximately

Japanese Frozen Swordfish Exports to United States and Guam, 1952			
Destination	Type	Quantity	Value
		Lbs.	US\$
United States	Fillet	9,045,634	2,336,569
	Steak	539,872	172,784
	Chunk	158,434	34,527
	Whole	160,471	36,002
Guam	Fillet	2,120	536
	Steak	4,200	1,327
Total ..		9,910,731	2,581,745

2 million pounds and US\$1.2 million less than in 1951, due to increased competition from Peruvian swordfish on the United States markets, states a U. S. Embassy dispatch from Tokyo dated February 27. Japanese swordfish exporters expect an upward trend in trade with the United States in 1953 because of some evidence of increased consumer demand for this type of product.

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FACTORYSHIP CRAB-FISHING EXPEDITION IN BRISTOL BAY: An application has been filed with the Japanese Government by three of Japan's largest fishing companies to operate a joint factoryship crab-fishing expedition in Bristol Bay in 1953, according to a Japanese press report (Nippon Keizai, February 5). The application will be considered by the Japanese Fisheries Agency and approval is expected shortly, states the U. S. Embassy at Tokyo.

The fleet is expected to sail from Hakodate, Hokkaido, on April 8. The catcher boats will return there September 14, while the mothership Tokei Maru is scheduled to return to Yokohama on September 29.

Organization of the expedition will be as follows:

Operational area - Bristol Bay (exact location not yet officially defined).

Period of operation - 5 months from latter part of April to the beginning of September. Actual fishing time 125 days.

Fleet - 1 mothership Tokei Maru (5,000 gross tons) 6 small catcher boats (estimated 10 gross tons average) to be deck-loaded on mothership. 6 catcher boats (60 to 70 gross tons average).

Crew members - Mothership - 337 men
Catcher boats - 84 men
Total - 421 men

Gear - 35,000 tan (approximately 7 million yards) of gill nets, 25 pairs of trawling nets.

Packing facilities - 2 lines of canning machinery, each line with capacity of 200 to 300 cases (48 6 1/2-oz. cans) daily.

Catch target - By gill nets: 630,000 crabs
By trawling: 470,000 crabs
Total - 1,100,000 crabs

Production - canned crab meat, 50,000 cases (48 6 1/2-oz. cans), (40,000 first grade and 10,000 second grade).

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MOTHERSHIP-TYPE SALMON EXPEDITION TO NORTH PACIFIC: The Japanese mothership-type salmon-fishing expedition to the North Pacific for 1953 will include 3 motherships and 85 catcher boats (35 more than in 1952), reports a February 6 U. S. Embassy dispatch from Tokyo. Plans for the 1953 expedition as compared with the 1952 expedition are listed below:

Japanese Mothership-Type Salmon Expeditions to North Pacific, 1952 & 1953

Item	1953	1952
Motherships	Kaiko Maru (2,940 gross tons) Meisei Maru (4,765 gross tons) Tenyo Maru No. 3 (3,689 gross tons)	Shinko Maru No. 1 (521 gross tons) Tenryu Maru (557 gross tons) Tenyo Maru No. 3 (3,689 gross tons)
Catcher boats	85	50
Vessels:		
Industry research ..	20	7
Government research.	Probably 2	2
Government patrol ..	Probably 2	2
Catch target	Undecided	1,800,000 fish (salmon)
Actual catch	-	2,102,787 fish (salmon)
Period of operation ..	May-August	May 10-August 6
Area of operation	Same general area as in 1952 with emphasis on Kamchatka and North Kuriles	South & west of the Aleutians (west of 177° E. longitude) until July 3, then shifted to better fishing grounds off Kamchatka and northern Kurile Islands.

The 1952 expedition was operated jointly by the same three large fishing companies which will engage in the 1953 expedition. In 1953, each of the three fleets will be operated independently by each company. The 1952 operation was financially profitable, with much of the catch being consumed in Japan, especially as salted fish during the fall and winter months and in the New Year holiday season.

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JAPANESE-AUSTRALIAN FISHERIES TREATY TALKS PROPOSED: Talks for a Japanese-Australian fisheries treaty were recently proposed by the Australian Government, according to a Japanese press release (The Mainichi, February 19) supplied by the U. S. Embassy at Tokyo. The talks were proposed for sometime in April in Australia. The proposal also requested Japan to suspend the pearl-shell fishing expedition which was scheduled to sail to the Arafura Sea north of Australia sometime in March. It is believed that this expedition prompted the Australian Government to make the proposal.

Under Article 9 of the San Francisco Peace Treaty Japan agreed to "enter promptly into negotiations with Allied Powers so desiring for the conclusion of bilateral and multilateral agreements providing for the regulation or limitation of fishing and the conservation and development of fisheries on the High Seas."

There are two reasons why Japan has delayed a reply to this proposal:

1. Japan would like to hold the negotiations in Tokyo, because it is more economical, and because it wants its fisheries experts close at home to handle the problems that constantly arise in this vital Japanese industry.
2. Considering the fact that preliminary negotiations for the reopening of deadlocked Japan-Republic of Korea treaty talks is now in progress, a priority should be given to the Korean talks rather than to the Australian proposal.



Mexico

SINALOA SHRIMP INDUSTRY AIDED BY STRONG UNITED STATES MARKETS: High shrimp prices in United States markets have to a great extent offset the light shrimp production for Sinaloa Province, reports a February 10 U. S. consular dispatch from

Mazatlan. Freezing-plant operators report that up through January 1953 they have been able to cover expenses and to pay their debts. The plants will be able to continue in operation until the end of the season if the availability of shrimp does not decrease.

Sinaloa Shrimp Exports to the United States, January 1953 with Comparisons			
Port	January 1953	December 1952	January 1952
Mazatlan	Lbs. 667,019	Lbs. 814,131	Lbs. 774,353
Topolobampo ...	346,030	259,526	389,250
Total	1,013,049	1,073,657	1,163,603

At present most of the shrimp shipped to the United States is jumbo size (under 15 count) and shippers receive 95 U. S. cents per pound (about US\$2,100 per metric ton) f.o.b. New York, Chicago, and Los Angeles. Processing and shipping costs amount to 16 U. S. cents per pound (about US\$350 per metric ton). The processors pay 53 U. S. cents per pound (US\$1,163 per metric ton) ex-vessel and realize a profit of approximately 26 U. S. cents per pound (US\$590 per metric ton).

Sinaloa shrimp exports to the United States in January totaled 1,013,049 pounds—a decrease of 6 percent when compared with December 1952 and 13 percent less than in January 1952 (see table).

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GUAYMAS SHRIMP PRODUCTION CONTINUES TO DECLINE: Shrimp production at Guaymas continued to dwindle during January and boat owners reported their catches by kilos rather than by tons, reports a February 6 U. S. consular dispatch from Guaymas. The total January production of little more than 200 metric tons marked a new monthly low in West Coast shrimping. This figure is less than one third of the total landed during any January at the height of the boom, and is 50 tons under December's meager catch.

As the catch became lighter, boat owners sent their vessels as far south as Salina Cruz on the Isthmus of Tehuantepec in search of the disappearing shrimp. A few craft fishing in the Gulf of Tehuantepec caught from 3 to 4 metric tons of shrimp, but the modest spurt failed to create optimism as it would have earlier in the season.

A few Guaymas shrimpers are considering the conversion of their craft totuna clippers, a type of vessel from which a few of the shrimp boats were originally converted. However, it is believed installation of bait tanks and auxiliary machinery would prove too expensive for the majority of the hard-pressed shrimpers; neither would credit be forthcoming.

The larger shrimp operators were granted a considerable measure of financial relief during January when the Mexican Government granted them a moratorium on the 5-million pesos (US\$578,000) loaned shrimp operators at the beginning of the 1951/52 season. The moratorium was granted with the understanding that interest payments on the loan would be brought up to date and maintained, and that insurance premiums would not be permitted to lapse. Otherwise, boat owners not financially able to meet these conditions presumably would have their vessels and equipment attached by the Government. It is widely believed that many of the more marginal operators will be forced out of the industry by the interest and insurance payment requirements. The moratorium is to extend to December 31, 1954.

One-half of the Guaymas shrimp fleet left Guaymas during February for Salina Cruz, Oaxaca, to fish in the Pacific off the Isthmus of Tehuantepec. Catches there have been described as "fair," but it is not expected that the boat operators will have a good year, reports a March 3 U. S. consular dispatch from Guaymas. Shrimp taken off Salina Cruz are being landed there and shipped directly to Mexico City and El Paso, Texas. This practice will probably keep most of the freezing and packing plants at Guaymas closed.

Some boats have ventured as far as the Pacific coast of Baja California. Fishing at such distances from the home port (1,000 miles and more) reduce the operators' margin of profit drastically. At present it is estimated that this year's shrimp catch by the Guaymas fleet will be about 30 percent less than in the 1951/52 season when 3,455 metric tons were landed. Last year was considered very poor in comparison with the 1949/50 and 1950/51 seasons when over 5,000 tons of shrimp were landed in each season. Since Guaymas depends heavily on the shrimp catch for its livelihood, this is a serious financial and economic problem for the city.

Local newspapers in Guaymas, Ciudad Obregon, and Navojoa have joined the Mexican press in other parts of the country in giving heavy and sensational coverage to the operations of what they term "pirate" American shrimp boats off the east coast of Mexico. They have demanded that the Mexican Government use any and all

means to prevent foreign boats from fishing near the Mexican coast. However, no such problem exists off the West Coast.

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SPINY LOBSTER AD-VALOREM EXPORT TAX REDUCED: The ad-valorem tax on exports of fresh, cooked, or refrigerated spiny lobster from Mexico was reduced by the Mexican Government from 15 percent to 3-3/4 percent, retroactive to January 1 this year and to expire December 30, 1953. This action was announced by an Acuerdo published in the Diario Oficial on February 23, and signed by the President of Mexico. The specific duty of 0.03 centavos per gross kilogram plus 10 percent additional listed under Fraction 11-10 remains unchanged.

The reduction, according to the Acuerdo, was made in view of the serious competition from North African and Australian spiny lobster exporters, as well as increased costs of production and the low price prevailing in consuming centers.

All firms who channel their spiny lobster exports through the Banco Nacional de Fomento Cooperativo, S. A. de C. V., or under its authorization, are granted the reduction, according to a U. S. Embassy dispatch from Mexico City dated February 26.



Norway

NEW FISHERY-TYPE "ASDIC" TESTED ON COMMERCIAL HERRING VESSEL: A new fishery-type ASDIC, which registers herring schools at a distance of 1,000 meters (about 3,280 feet) was tested recently by personnel of the Norwegian Directorate of Fisheries on the commercial fishing vessel Ramoen, reports the January 4 Fiskaren, a Norwegian fishery magazine. Tests were made on the herring fishing grounds, and it is hoped this new ASDIC will prove practicable for the fishing fleet. The civil engineer who was on board the Ramoen during the tests said: "We are well pleased with the tests we made so far. We registered herring up to a distance of 1,000 meters and many times had good contacts."

In previous tests on the Norwegian fishery research vessel G. O. Sars, contact with herring schools was made at distances up to 2,000 meters (6,560 feet), but at this distance an observer who has experience in herring detection is required, reports Finn Devold, Norwegian fishery scientist.

The captain of the Ramoen says that ASDIC can also be used for vertical registering and is unsurpassed when compared with the usual echo sounder. It is simpler in construction and takes less space than other types of ASDIC. It now must be determined if this new type is of sufficient value for use by the largest fishing vessels.

The ASDIC equipment installed in the fishing vessel Ramoen is a prototype of a commercial model, reports a March 3 U. S. Embassy dispatch from Oslo. This equipment was constructed and tested at the laboratory of the ASDIC section of the Norwegian Defense Research Establishment, and was installed in the fishing vessel for final tests. The equipment is not yet available. However, production rights have been granted to an electronics firm in Oslo. The total electrical power requirement for operation of the equipment is approximately 350 watts, 220 V, 110 V, or 24 V d.c.

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HERRING CUTTING MACHINE: A new herring cutting machine built in Aalesund, Norway, by Per Borch Olsen, that is reported to have increased capacities and cut operating costs, has been well received in the Aalesund and Bergen districts. The machine is fed by hand and has a normal capacity of 180 herring per minute, or 20 barrels per hour. It costs between kr. 3,000 and 4,000 (US\$420 to 560); a Swedish machine that has been used to date costs kr. 25,000 (US\$3,500). A similar machine for use on Norwegian fishing vessels that fish for Icelandic herring is also under construction by the inventor, according to the February 11 Fiskaren, a Norwegian trade publication.

BLOCK FREEZING OF BAIT IN ALGINATE GELATIN: A promising method for block freezing of bait in an alginic acid gelatin has been tested by a Drammen, Norway, firm. The method appears suitable for preserving bait over long periods of time. It is reported to hinder the bait from breaking up and to protect it from rancidity. Tests at the Industry Laboratory in Kristiansund and during practical trials in the Greenland fishery showed promising results. Additional tests will be made this winter at various freezers under the direction of the inventor, Alf Olsen.

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WINTER "LARGE HERRING" FISHERY: CATCH FOR 1953 SEASON: The 1953 winter "large herring" fishery season came to an official close on February 15 with a total catch of 559,000 metric tons, states a February 18 U.S. Embassy dispatch from Oslo. Thus, in spite of a late start and unusually stormy weather during the first part of the season, the 1952 "large herring" catch of 549,000 metric tons was exceeded, but the record catch of 648,000 metric tons in 1951 was not reached.

The herring did not arrive at the regular locations until January 27, about two weeks late, due to the poor weather and the fact that the herring remained deep in the water. However, in a two-week period, starting the first of February, herring were scooped out of the sea at an average rate of about 37,000 metric tons per day, an intensity never before equalled in the history of Norwegian fishing. An all-time record for a single day's catch, set on February 3 (65,000 metric tons), was exceeded on February 7 when over 93,000 metric tons were landed between Aalesund and Floro in a 24-hour period.

The vessels knew exactly where to go when they set off for the herring grounds. The areas of maximum fish concentration had been pin-pointed by scientists on the research vessel G. O. Sars and promptly relayed to the fishermen by radiotelephone.

It is hoped that the Norwegian winter herring fishery (comprising "large herring" and "spring herring") this year may live up to the high budgetary estimates prepared before the start of the season—884,000 metric tons or the same as was caught in 1951.

The excellent results obtained during the last two weeks of the "large herring" season are attributed partly to the larger number of fishing craft participating and partly to the wider use of electronic devices, and in spite of the unfavorable water temperatures and weather.

The importance to the Norwegian economy of this favorable turn of events will be seen when it is remembered that in 1952 the winter herring catch accounted for almost 5 percent of Norway's foreign exchange earnings from exports (excluding ships).

U. S. HERRING-FISHING TECHNIQUES UNSUCCESSFUL: A Norwegian fisheries expert has indicated that these three fishing techniques developed in the United States had been tried in Norway with unsatisfactory results:

COAST OF NORWAY. They have indicated that the United States Government and the

1. The use of nylon purse seines. The Norwegian winter herring are so lively that several nylon seines were lost by a trapped school suddenly diving; ordinary seines break under the impact and can be mended, but nylon nets, being too strong, are carried away at such times.
2. The use of suction hoses to bring herring aboard from the seine. The dip-net method is faster and less harsh.
3. The use of the seiners themselves rather than dories to make the "cast" of the purse seine. The dory method is more flexible and better adapted to the crowded conditions on the Norwegian herring banks.

Operation of Herring Sales Organization: The same fisheries expert explained the function of the herring sales organization (Norges Sildesalslag), which has been in operation for the past 25 years. Before, confusion and uncertainty had hampered fishing operations during the best part of the season. Now, as each ship completes its catch of herring it radios the nearest office of the organization giving its location, speed, amount of catch, and other pertinent information. The office is then able to direct each returning vessel to the place (or places) where it should discharge its cargo. The organization maintains an equalization fund so that fishermen get the same price no matter to whom they sell their catch. At the same time, herring meal plants do not pay as much for their raw material as do, for instance, freezing plants. Freezing plants take only the top layer of herring from each ship, leaving the rest (which is slightly older and more crushed) to the salting plants and meal and oil factories.

Prices For 1953 Season: The prices received by the winter herring fishermen this season have been 18.50 kroner per hectoliter (1.3 U.S. cents per pound) for "large herring" caught before February 15, 1953, and 15.50 kroner per hectoliter (1.1 U.S. cents per pound) for "spring herring" caught after that date. The Norwegian Price Directorate has also established a complex system of prices to be paid during different parts of the season by different classes of processors. The reason for lower prices during the latter part of the season is that the herring when they first arrive off the coast of Norway are extremely fat and full of roe and milt. By the end of the season, after they have spawned and are ready to go back to sea, the herring are lean and less valuable both as a food and as an industrial raw material. February 15 has been set arbitrarily as the last day of the "large herring" season each year.

Composition of Herring Fleet: The Norwegian herring fleet is composed primarily of two types of fishing vessels--drift gill netters and purse seiners. The former are smaller and less complex. Although they are in the majority, they account for a smaller proportion of the catch than do the seiners. Furthermore, herring caught in drift nets are of lower quality because while being removed from the nets they often become damaged. However, drift netters are at an advantage when the herring are too deep in the water or too elusive to be caught by purse seines. As the season progresses, a drift-net fisherman can put out more and more nets, since the herring become sluggish and are less likely to swim off. A total of 600 large purse seiners and 2,500 drift gill netters, manned by about 30,000 fishermen, operated this year.

Both the purse seiners (which average 300-400 metric tons of herring a set) and the drift netters (with a daily catch of about 40 tons) make use of echo depth sounders to spot the exact location of the schools. Some of the larger vessels are also equipped with sonar. At the present time, nearly 3,000 echo depth sounders are in-

stalled aboard Norwegian fishing vessels. Also, all of the larger and many of the smaller craft feature radiotelephone.

Pearl Essence Factory Closes: A pearl essence factory, built a few seasons ago by private United States capital, which used scales from the freezing plants, was closing this year because of the extremely poor world market situation. It would sell its present stock, hoping for an improvement next year. The herring scales, which form the basic raw material, are saved by the freezing plants during the initial washing process.



Portugal

NEW COD FISHING METHOD TESTED: A new method for catching cod by long lines was tested recently on the Newfoundland and Greenland banks by the Portuguese vessel S. Ruy, according to the February 1953 World Fishing, a British fishery magazine. Dories were replaced by powered Danish-made pine-and-oak boats similar to powered whaleboats. The boats, with a length of 20 feet, a beam of 6 feet 10 inches, and a depth of 3 feet, are equipped with a 10 hp. engine and a variable-pitch propeller. They have a capacity for 3,960 pounds of fish.

The boats use three different types of lines. For fishing in depths of about 30 fathoms or less, a main line 5,250 fathoms long with 10,500 hooks tied to gangions or branch lines spaced 3 feet apart is used. The gear for depths between 30 to 100 fathoms is 10,800 fathoms long with 7,200 hooks and the same number of gangions. On the edge of the fishing banks in depths over 100 fathoms, a 12,600-fathom line with 4,200 hooks attached to gangions spaced 3 fathoms apart is used.

In setting the line, the "iron" and attached buoy are thrown overboard first. Then, as the boat sails, the rest of the gear is thrown out as the fishermen bait the hooks. The line is hauled back aboard by a small line hauler with two horizontal pulleys operated by the engine and a line roller.

Advantages of this new method are primarily in the increased fishing range from the mothership and reduced danger for the fishermen. Further, it would permit the exploitation of deeper fishing banks where it is impossible to haul lines by hand.



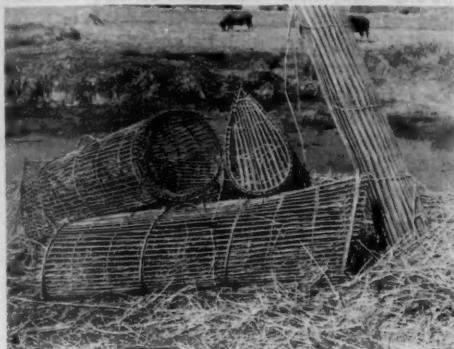
Thailand

STATUS OF THE FISHERIES, 1950: Catch: The total estimated catch of fresh- and salt-water fish in Thailand during 1950 amounted to 158,000 metric tons, a slight increase over the 154,000 metric tons landed in 1949 (table 1), reports a January 12 U. S. Embassy dispatch from Bangkok.

Byproducts: The manufacture of fishery byproducts is practically unknown in Thailand. Some fish meal is produced by primitive methods, but the output is negligible. There is no fish-oil industry at present. The Department of Fisheries reports that the Ministry of Health is actively considering a project for the extraction of shark-liver oil.

Consumption: Fish consumption by Thailand inhabitants is estimated by the Director-General of the Department of Fisheries at 18 kilograms (39.6 pounds) a year.

per person or approximately 342,000 metric tons for all of Thailand. (Editors' note: this is believed to represent landed weight.) This includes fresh fish as well as local and imported processed fishery products.



BAMBOO TRAPS FOR CATCHING FISH IN INLAND WATERS. FAO HAS IN THAILAND AN EXPERT TO ASSIST IN IMPROVING FISH-CULTURE TECHNIQUES.



SEPARATING CATCH OF A FISHING BOAT ACCORDING TO KINDS AND SIZE. THE WOMAN IN THE CENTER IS ONE OF THE FISH BUYERS.

Species	Thailand's Fishery Products Catch by Species, (1947-50)			
	1950	1949	1948	1947
..... (Metric Tons)				
Marine Fish:				
Restrellinger (Pla Too, Plalang)	39,000	51,000	29,000	22,000
Sharks	2,000	3,000	2,000	1,000
Other marine fish	28,000	30,000	21,000	25,000
Shrimp, prawn, and crab	11,000	9,000	10,000	10,000
Mollusks	36,000	16,000	58,000	56,000
Total	116,000	109,000	120,000	114,000
Fresh-water Fish:				
Murrel or serpentheaded fish (Pla Chon-Ophicephalus striatus); Catfish (Pla Duk-Clarias batrachus); Anabas testudineus (Pla Moh)	18,000	18,000	18,000	16,000
Carp (Pla Taphien-Puntius javanicus) ..	3,000	4,000	3,000	2,000
Other fresh-water fish	18,000	19,000	17,000	16,000
Shrimp and prawn	3,000	4,000	3,000	3,000
Total	42,000	45,000	41,000	37,000
Grand total	158,000	154,000	161,000	151,000



Union of South Africa

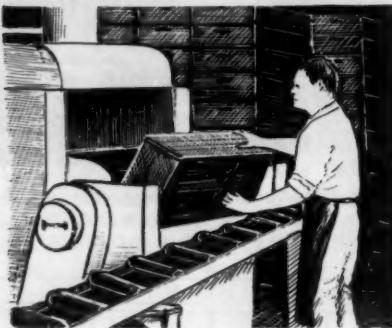
ABALONE CANNERY ESTABLISHED: An abalone (perlemoen) cannery has been established recently at Gansbaai on the South African coast east of Cape Town, reports the January 1953 issue of The South African Shipping News and Fishing Industry Review. The abalone are obtained by divers. Canned abalone is becoming popular among the Chinese in Malaya and other Far Eastern countries.



United Kingdom

BOX-WASHING MACHINE USED IN SCOTLAND: Mechanized washing of dirty fish boxes has been pioneered in Scotland by a trawler-owner and fish salesman in his modernized plant at The Shore, Granton. The machine can wash about 1,000 used fish boxes per day, reports the January 17 issue of The Fishing News, a British trade periodical. Built by a well-known British washing-machine manufacturer, it is the first machine of its kind in Scotland.

The dirty box travels through the washer mechanically, is subjected to a series of processes, and emerges thoroughly cleaned at the delivery end. The washing routine is pre-rinse, detergent, and a very hot spray. The box emerges so hot that it dries quickly. Truckloads of dirty boxes are run up to the mouth of the washer and are fed from the truck platform into the machine by hand. An operator at the delivery end examines the washed boxes, checks for defects, and puts clean, whole boxes on a gravity-roller conveyor running at right-angles to the machine. At the end of the gravity run the box is picked up by an elevated rubber conveyor, which takes it to loading bank level.



Boxmakers and box-pool operators from other Scottish ports have visited the installation at Granton, which also does box washing for a number of other trawler-owners.

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NEW FISH OIL-EXTRACTION PROCESS DEVELOPED: A British firm recently developed a new process for extracting oils and fats from naturally occurring cellular materials. These include fish and fish-liver oils. The practical application of the process to these fishery products is being actively investigated, reports the February 1953 World Fishing, a British trade magazine.

The new method is known as the Chayen cold-rendering process after its chief inventor. It dispenses with heat, which has hitherto been necessary in some form in all rendering processes, and eliminates the inevitable waste and degradation of the products due to heat.

In fact, this new process is based on the principle of impulse rendering, which consists of passing the raw material, suitably cut up and suspended in a continuous stream of cold water, through a vessel in which the water is subjected to mechanical impulses of high speed and frequency. This has the effect of shattering the cell walls and instantly removing their oil or fat content.

For fish and fish-liver oils, the apparatus is clean and compact, and the product is of extremely high purity. By the same token, the yield of a fish-meal plant run in conjunction with this new impulse renderer would also be of very high quality. The potentialities of the new process for use aboard trawlers and fish factory ships are obvious, especially in view of the fact that sea water can be used for the feed. In fact, according to the manufacturers of the equipment, sea water may have advantages over fresh water for this application.

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BRITISH FISHERMEN TO BE DENIED FISHING PRIVILEGES OFF NORTHERN COAST OF RUSSIA: British fishermen will be denied fishing privileges in a 400-mile coastal fishing area in the Barents and White Seas off the northern coast of Russia commencing in June 1953. The Russian Government recently gave the required 6-months' notice to end the Anglo-Soviet fisheries agreement. This agreement, signed in May 1930, was to run until either party gave 6-months' notice of termination. It allowed United Kingdom-registered fishing vessels to fish between 3 and 12 miles from northern U.S.S.R. coasts and their dependent islands. The agreement was intended as an interim measure before the conclusion of a mutually-desired formal convention, reports the January 24 Fish Trades Gazette, a British trade magazine.

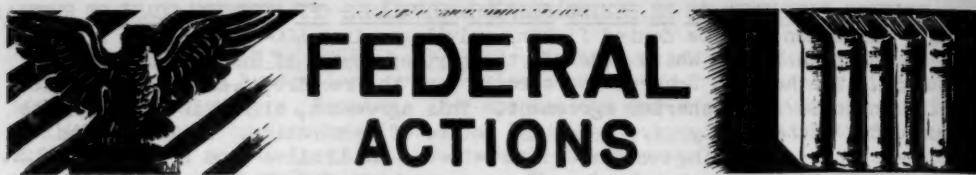
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WHITE FISH AUTHORITY LOANS FOR FISH PROCESSING: Arrangements have been approved for making loans to assist in providing, acquiring, reconditioning, or improving plants for processing white fish in the United Kingdom, a memorandum from the White Fish Authority, dated January 19, 1953, announced. This includes the installation of the processing plant and equipment, the purchase of the site, the erection and adaptation of buildings, and the provision of reasonable storage, reports a March 6 U. S. Embassy dispatch from London.

The memorandum specifies "processing includes preserving or preparing fish or manufacturing products from fish, by any method for human or animal consumption." Loans may be made for canning, quick-freezing, fish-meal, smoking, and salting plants, and factories engaged in the manufacture of fish cakes, fish paste, and other fishery products.

Loans made by the Authority will not exceed 80 percent of the cost as approved by the Authority, and will be available for a period not to exceed 20 years, with specified rates of interest. Until further notice the rate of interest will be 3 percent for loans for not more than 5 years, 4 percent for loans for more than 5 years but not more than 15 years, and 4½ percent for loans for more than 15 years but not more than 20 years. The terms and conditions of each loan are to be determined by an agreement between the borrower and the Authority.





FEDERAL ACTIONS

Department of Commerce

NATIONAL PRODUCTION AUTHORITY

DEFENSE MATERIALS SYSTEM TO REPLACE CONTROLLED MATERIALS PLAN: A new materials control system, limited to assuring deliveries of enough steel, copper, and aluminum for the Department of Defense and the Atomic Energy Commission, was announced by the National Production Authority on March 23. Subject to Congressional extension of Title I of the Defense Production Act, the Defense Materials System will govern the defense distribution of the three metals after July 1, 1953, following the June 30 expiration of the more embracing Controlled Materials Plan (CMP). Under CMP, the Government has been allocating all steel, copper, and aluminum not only for defense purposes, but also for the entire civilian economy. Under DMS, the Government steps out of the civilian side of the materials control picture.

The National Production Authority simultaneously announced that, effective March 23, 1953, controlled materials producers may accept unrated orders for steel, copper, and aluminum for delivery after June 30. However, continuing heavy military demands for nickel-bearing stainless steel require maintaining control of this material for use in both the civilian and military economy after July 1. CMP allotment authority for this material is continued for the third calendar quarter of 1953.

For details see: Dir. 11 (Rules Relating to Transition from CMP to DMS) to Rev. CMP Reg. 6 (Construction); Dir. 21 (Rules Relating to Transition from the Controlled Materials Plan to the Defense Materials System) to CMP Reg. 1 (Basic Rules of the Controlled Materials Plan); DMS Reg. 1 (Basic Rules of the Defense Materials System); DMS Reg. 2 (Construction Under the Defense Materials System); and news release NPA-2940; all dated Mar. 23, 1953.

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REGULATIONS ON INVENTORIES OF CONTROLLED MATERIALS REVOKED: CMP Regulation No. 2 (Inventories of Controlled Materials) and NPA Reg. 1 (Inventory Control) were revoked effective May 1, 1953. These revocations appeared in the May 5, 1953, Federal Register.



Department of Defense

POLICY ON PURCHASES OF FISHERY PRODUCTS: The Quartermaster Corps recently issued a statement on the general policy of the Department of Defense in purchasing fishery products for the United States Armed Forces. The statement points out that in accordance with the provisions of the Department of Defense Appropriation Act 1953 and the Buy-American Act, the Quartermaster Corps does not procure fishery products from foreign sources for feeding Armed Forces personnel in the United States. Overseas commands are permitted to procure fishery products for Armed Forces personnel only when the source of supply is indigenous to their command.



Economic Stabilization Agency

OFFICE OF PRICE STABILIZATION

PRICE CONTROLS END: The lifting of all remaining price controls was announced by the Office of Price Stabilization on March 17. This means that there are no price controls on any commodities (including fishery products and byproducts) or services at any level of distribution.

In Amendment 1 to General Overriding Regulation 44, OPS exempted from price control all sales of all commodities and services. The exemption is applicable in the Continental United States, in the Territories and Possessions, and in the Commonwealth of Puerto Rico.

This action is the seventh and final step in compliance with the President's direction for orderly termination of price controls.

Previously, over a period of several weeks beginning February 6, 1953, OPS had issued orders gradually removing from price control a wide range of commodities and services. On March 12, the agency issued General Overriding Regulation 44, which removed price control from all commodities and services except a limited number of items in the chemical and industrial materials field.

OPS officials emphasized that this latest order has no effect on standing requirements calling for the preservation of records of past transactions for specified periods. Business firms need not make or keep records on future transactions but must keep available for inspection whatever records were required by the regulations under which they formerly operated. April 30, 1955, has been specified as the latest date beyond which records need not be retained. The period of retention may be shorter for certain businesses and certain records. For detailed information on records-preservation requirements, businessmen are advised to consult the regulations which have been covering them.

For details see: Amdt. 1 (Termination of Price Controls) to GOR 44 (General Exemptions and Preservation of Records) and news release OPS-GPR-1750, both dated March 17, 1953.

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FISH MEAL, SCRAP, AND SOLUBLES REMOVED FROM PRICE CONTROL: Price ceilings were lifted from all commodities remaining under control except for a small selected list of items. Among the groups of items freed from controls on March 12 by the sixth in a series of orders carrying out the President's directive for orderly elimination of price controls were soybeans and animal feeds. According to information received from OPS, this action decontrols all marine feeds (fish meal, fish scrap, fish solubles, etc.) and revokes CPR 39.

Because of the relatively small number of commodities remaining under price control, this latest order takes the form of a single overriding regulation (GOR 44) providing that sales of all commodities and services in the Continental United States are exempt except those specifically listed as subject to ceilings. There are no fishery products or byproducts among the commodities listed as still subject to ceilings.

Still in effect as far as fishery products are concerned is CPR 51 which establishes ceiling prices for salted cod sales in Puerto Rico.

GOR 44 also specifies that records required under ceiling price regulations need not be preserved after April 30, 1955. This latest clarification regarding the keeping of records spells out the requirement that certain records be kept for the life of the Defense Production Act and two years thereafter. It makes clear that April 30, 1955, is the cutoff date for the required preservation of records. Sellers of decontrolled commodities and services need not, of course, make or keep records of transactions since decontrol.

For details see: News release OPS-GPR-1749; GOR 44 (General Exemptions and Preservation of Records), dated Mar. 12, 1953.

* * * * *

FISH OILS INCLUDED IN DECONTROL OF FATS AND OILS: Fish oils were included among a broad range of commodities which were removed from price control at all levels of distribution by an action taken by OPS in carrying out the Directive of the President that price controls shall be removed in an orderly manner. This action issued on February 12, 1953, removed price controls on all fats and oils, except oleomargarine. Decontrol of these items was made effective immediately by Amendment 20 to Revision 1 of General Overriding Regulation 7. The announcement, however, points out that all fats and oils still remain under control in the Territories and Possessions.

The action specifically revoked, among others, Ceiling Price Regulation 6, which covered fats and oils.

For details see: News release OPS-GPR-1742; GOR 7, Rev. 1, Amdt. 20, dated Feb. 12, 1953.

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FISH VITAMIN OILS INCLUDED IN DECONTROL OF DRUGS: Fish vitamin oils were included among a long list of commodities and services decontrolled by the Office of Price Stabilization's third action carrying out the President's directive for orderly elimination of price controls. The February 18 decontrol action by OPS removed drugs and cosmetics from price control. According to information received from OPS, this action included fish vitamin oils at all levels of distribution.

For details see: News release OPS-GPR-1744; GOR 3, Rev. 1, Amdt. 3, dated Feb. 18, 1953.



Department of Health, Education, and Welfare

FOOD AND DRUG ADMINISTRATION

INSPECTION REGULATIONS FOR PROCESSED SHRIMP AND CANNED OYSTERS REVISED: Canned shrimp, fresh and frozen shrimp, and canned oyster revised regulations for voluntary inspection requested by packers and processors under the Federal Food, Drug, and Cosmetic Act (section 702a) appeared in the April 16 Federal Register. The revised regulations issued by the Food and Drug Administration establish a new system for collection of fees; extend inspection services to plants supplying certain raw materials to the inspected establishments; provide for revised processing times and temperatures; conspicuous placement of the inspection legend, if used; and advancement of the application dates to permit more thorough preparation for inspection. The revised regulations were scheduled to take effect on May 16.

The principal change in the regulations has to do with collection of fees for the inspection service. The cost will be met first from standard monthly payments by all voluntary subscribers and then by supplements to the fund as the season progresses, from production deposits based on the cases of oysters packed or the pounds of shrimp received by an establishment. At the end of the fiscal year any excess of money collected over the Food and Drug Administration's total expenses in rendering the inspection service is refunded to the subscribers.

Previously the system of assessing subscribers gave prime importance to the number of cases packed rather than to the monthly payment. FDA states that this could result in a packer with a very large production having to pay a disproportionate share of the cost of the service. Recognizing this, the revised regulations shift emphasis to the fixed monthly charges and make the production deposits secondary. FDA says that this system will more nearly make each individual packer pay for the amount of work actually performed for inspection.

Inspection extends to plants supplying certain raw materials to the inspected establishments under the revised regulations. The service until a few years ago was limited to canned shrimp, but under the revised regulations the voluntary inspection service is now available on all types of processed shrimp, including shrimp products requiring the use of raw materials other than shrimp. Inspection of the sources of raw material supply is authorized under the revised regulations. The cost is placed upon the subscriber.

The types of shrimp products covered are iced or frozen raw headless; raw peeled or cooked peeled (any of which may be deveined); iced or frozen deveined shrimp, partially or completely peeled (which may be covered with batter and breaded before freezing); and canned shrimp. For oysters only the canned product is covered.

Processing times and temperatures in the revised regulations have been changed to conform with present-day commercial practices.

The full text of the order follows:

By virtue of the authority vested in the Federal Security Administrator by the provisions of the Federal Food, Drug, and Cosmetic Act (sec. 702a, 48 Stat. 1204, 49 Stat. 871, 52 Stat. 1040, 1059; 21 U. S. C. 372a), the regulations for the inspection of canned shrimp, fresh and frozen shrimp, and canned oysters (21 CFR 155, 1951 Supp.) are revised and reissued as hereinafter set forth.¹

SUBPART A—INSPECTION OF PROCESSED SHRIMP

- 155.1 Application for inspection service.
- 155.2 Granting or refusing inspection service; cancellation of application.
- 155.3 Inspection periods.
- 155.4 Assignment of inspectors.
- 155.5 Uninspected shrimp excluded from inspected establishments.
- 155.6 General requirements for plant and equipment.
- 155.7 General operating conditions.
- 155.8 Code marking.
- 155.9 Processing.
- 155.10 Examination after processing.
- 155.11 Labelling.
- 155.12 Certificates of inspection; warehousing and export permits.
- 155.13 Inspection fees.
- 155.14 Suspension and withdrawal of inspection service.

SUBPART B—INSPECTION OF CANNED OYSTERS

- 155.16 Application for inspection service.
- 155.17 Granting or refusing inspection service; cancellation of application.
- 155.18 Inspection periods.
- 155.19 Assignment of inspectors.
- 155.20 Uninspected oysters excluded from inspected establishments.
- 155.21 General requirements for plant and equipment.
- 155.22 General operating conditions.
- 155.23 Code marking.
- 155.24 Processing.
- 155.25 Examination after canning.
- 155.26 Labelling.
- 155.27 Certificates of inspection; warehousing and export permits.
- 155.28 Inspection fees.
- 155.29 Suspension and withdrawal of inspection service.

AUTHORITY: §§ 155.1 to 155.29 issued under sec. 701, 52 Stat. 1055; 21 U. S. C. 371.

SUBPART A—INSPECTION OF PROCESSED SHRIMP

§ 155.1 Application for inspection service. (a) Applications for inspection service on the processing of shrimp under the provisions of section 702a of the Federal Food, Drug, and Cosmetic Act shall be on forms supplied by the Food and Drug Administration, herein-after referred to as the Administration. The processing of shrimp comprises all the operations, including labeling and storage, necessary to prepare for the market shrimp in any of the following

forms: Iced or frozen raw headless, raw peeled or cooked peeled (any of which may be deveined); iced or frozen deveined shrimp, partially or completely peeled (which may be battered and breaded before freezing), and canned shrimp. No application for a regular inspection period filed with the Administration after May 1, preceding such period in any year, shall be considered unless the applicant shows substantial cause for failure to file such application on or before May 1 of such year. A separate application shall be made for each inspection period in each establishment for which the service is applied. Each application for a regular inspection period shall be accompanied by an advance payment of \$500.00 as prescribed by § 155.13 (a) (1). Such payment shall be made in the manner prescribed by § 155.13 (e).

(b) For the purposes of §§ 155.1 through 155.14, an establishment is defined as a factory where shrimp may be processed and warehouses and cold storage plants under the control and direction of the packer where such shrimp is stored.

§ 155.2 Granting or refusing inspection service; cancellation of application.

(a) The Federal Security Administrator may grant the inspection service applied for upon determining that the establishment covered by such application complies with the requirements of § 155.6.

¹This order rescinds former §§ 155.0 to 155.13 dealing with canned shrimp; §§ 155.16 to 155.29, dealing with fresh and frozen shrimp; and §§ 155.30 to 155.45, dealing with canned oysters.

(b) The Administrator may refuse to grant inspection service at any establishment for cause. In case of refusal, the applicant shall be notified of the reason therefor and shall have returned all advance payments and deposits made, less any expenses incurred for preliminary inspection of the establishment or for other purposes incident to such application.

(c) The applicant, by written notice to the Administrator, may withdraw his application for inspection service before July 1 preceding the inspection period covered by the application. In case of such withdrawal, the Administrator shall return to such applicant all advance payments and deposits made, less any salary and other expense incurred incident to such application.

§ 155.3 Inspection periods. (a) The regular inspection period in each establishment in which inspection service under §§ 155.1 through 155.14 is granted consists of 9 consecutive months. The date of the beginning of such regular inspection period shall be regarded as the date, on or after July 1 but not later than October 1, specified for the beginning of the service in the application therefor, or such other date as may be specified by amendment to such application and approved; but if the Administrator is not prepared to begin the service on the specified date, then the period shall start on the date on which service is begun.

(b) Extension inspection periods shall begin at the close of the preceding inspection period. Extension inspection periods may be granted for periods of 1 month and/or fractional parts of 1 month, but in no case less than 1 day. Extension inspection periods for 1 month may be granted in such establishment if application therefor, accompanied by a payment of \$600.00 as prescribed by § 155.13 (a) (3), is made at least 2 weeks in advance of the close of such preceding inspection period. Applications for extension inspection periods for fractional parts of a month may be accepted when accompanied by the payment prescribed by § 155.13 (a) (3) for such extensions. No regular or extension inspection period shall extend beyond June 30 of any year.

(c) Upon request of the packer, and with the approval of the Administration, such service during any inspection period may be transferred from one establishment to another to be operated by the same packer; but such transfer shall not serve to lengthen any inspection period or to take the place of an extension inspection period. In case of such transfer the packer shall furnish all necessary transportation of inspectors.

(d) The inspection service shall be continuous throughout the inspection period.

§ 155.4 Assignment of inspectors. (a) An initial assignment of at least one inspector shall be made to each establishment in which inspection service under §§ 155.1 through 155.14 is granted. Thereafter, the Administration shall adjust the number of inspectors assigned to each establishment and tour of duty of each inspector to the requirements for continuous and efficient inspection.

(b) Any inspector of the Administration shall have free access at all times to all parts of the establishment, to plants supplying materials to the inspected establishment, and to all fishing and freight boats and other conveyances catching shrimp for, or transporting shrimp to, such establishment.

§ 155.5 Uninspected shrimp excluded from inspected establishments. (a) No establishment to which inspection service has been granted shall at any time thereafter process shrimp which has not been so inspected or handle or store in such establishment any processed shrimp which has not been so inspected; but this paragraph shall not apply to an establishment after termination of inspection service therein or withdrawal therefrom as authorized by § 155.14.

(b) All shrimp and other ingredients entering into the finished product may be subject to inspection prior to delivery to the establishment or at any time thereafter, and all shrimp processed in such establishment shall be subject to certification under § 155.12.

§ 155.6 General requirements for plant and equipment. (a) All exterior openings of the establishment shall be adequately screened, and roofs and exterior walls shall be tight. When necessary, fly traps, fans, blowers, or other approved insect-control devices shall be installed.

(b) Except for raw headless shrimp, which may or may not be deveined, picking and packing rooms shall be separate, provided that this requirement may be waived by the Administration where separation of picking and packing rooms is not necessary for adequate sanitation. Blanching tanks shall not be located in picking room. Fixtures and equipment shall be so constructed and arranged as to permit thorough cleaning. Such rooms shall be adequately lighted and ventilated, and the floors shall be tight and arranged for thorough cleaning and proper drainage. Open drains from picking room shall not enter packing or blanching room. If picking and packing rooms are in separate buildings, such buildings shall not be more than 100 yards apart unless adequate provisions are made to enable efficient inspection.

(c) All surfaces of tanks, belts, tables, flumes, utensils, and other equipment with which either picked or unpicked shrimp come in contact after delivery to the establishment shall be of metal or of other smooth nonporous and easily cleanable materials, provided such materials are not lead or other toxic substances. Metal seams shall be smoothly soldered or smoothly welded.

(d) Adequate supplies of suitable detergents and sanitizing agents approved by the Administration; clean, unpolluted running water; and, if necessary, steam shall be provided for washing, cleaning, and otherwise maintaining the establishment in a sanitary condition.

(e) Adequate toilet facilities of sanitary type which comply fully with applicable State laws and local ordinances shall be provided.

(f) An adequate number of sanitary washbasins, with liquid or powdered

soap, shall be provided in both the picking and packing rooms. Paper towels shall be provided in the packing room. Provision shall be made for sanitizing the hands of employees by the use of suitable sanitizing agents.

(g) Signs requiring employees handling shrimp to wash and sanitize their hands after each absence from post of duty shall be conspicuously posted in the picking and packing rooms and elsewhere about the premises as conditions require.

(h) One or more suitable washing devices and one or more suitable inspection belts shall be installed for the washing and subsequent inspection of the shrimp before processing.

(i) Suitable containers, flumes, chutes, or conveyors shall be provided for removing offal from picking room.

(j) Picking or heading tables shall be equipped with flumes supplied with clean, unpolluted water or with mechanical conveyors for removing the picked or headed shrimp.

(k) Equipment shall be provided for code-marking cans and other immediate containers and master cartons used in packaging other than canned shrimp.

(l) An automatic container-counting device shall be installed in each cannery line.

(m) Each sterilizing retort shall be fitted with at least the following equipment:

(1) An automatic control for regulating temperatures.

(2) An indicating mercury thermometer of a range from 170° F. to 270° F. with scale divisions not greater than 2° F. For steam cook such thermometers shall be installed either within a fitting attached to the shell of the retort or within the door or shell of the retort. For water cook such thermometers shall be installed in the door or shell of the retort below the water level. If the thermometer is installed within a fitting such fitting shall communicate with the chamber of the retort through an opening at least 1 inch in diameter. Such fitting shall be equipped with a bleeder at least $\frac{1}{2}$ -inch in diameter. If the thermometer is installed within the door or shell of the retort, the bulb shall project at least two-thirds of its length into the principal chamber.

(3) A recording thermometer of a range from 170° F. to 270° F. with scale divisions not greater than 2° F. The bulb of such thermometer shall be installed as prescribed for the indicating mercury thermometer. The case which houses the charts and recording mechanism shall be provided with an approved lock, all keys to which shall be in the sole custody of the inspector.

(4) A pressure gauge of a range from 0 to 30 pounds, with scale divisions not greater than 1 pound and diameter of not less than 5 inches. Such gauge shall be connected to the chamber of the retort by a short gooseneck tube. The gauge shall be not more than 4 inches higher than the gooseneck.

(5) For steam cook, a blow-off vent of at least $\frac{3}{4}$ -inch inside diameter in the top of the retort.

(6) For steam cook, a $\frac{1}{2}$ -inch bleeder in top of retort.

(n) Each cold storage compartment

shall be fitted with at least the following equipment:

- (1) An automatic control for regulating temperature.
- (2) An indicating thermometer so installed as to indicate accurately the temperature within the storage compartment.
- (3) A recording thermometer so installed as to indicate accurately the temperature within the compartment at all times. The case which houses the charts and recording mechanism shall be provided with an approved lock, all keys to which shall be in the sole custody of the inspector.

(4) Provision shall be made for water-glazing where such glazing is necessary to maintain the quality of frozen shrimp. Glazing shall be done with clean, unpolluted water.

(5) Provision shall be made for immediate icing or cold storage of all packaged shrimp which is destined for sale as unfrozen shrimp.

(6) Suitable space and facilities shall be provided for the inspector to prepare records and examine samples, and for the safekeeping of records and equipment.

§ 155.7 General operating conditions.

(a) Plants supplying raw headless or frozen raw headless shrimp to an inspected establishment, decks and holds of all boats catching shrimp for or transporting shrimp to an inspected establishment, and the bodies of other conveyances so transporting shrimp shall be kept in a sanitary condition.

(b) Inspected establishments, plants supplying in inspected establishments, freight boats, and other conveyances serving such establishments shall accept only fresh, clean, sound shrimp. The shrimp shall be iced or refrigerated immediately after they are caught, and shall be kept adequately iced or refrigerated until delivery to the establishment.

(c) After delivery of each load of shrimp to the establishment, decks and holds of each boat and the body of each other conveyance or container making such delivery shall be washed down with clean unpolluted water, and all debris shall be cleaned therefrom before such boat or other conveyance or container leaves the establishment premises.

(d) Before being headed, picked, or deveined, the shrimp shall be adequately washed with clean, unpolluted water and then passed over the inspection belt and culled to remove all shrimp that are filthy, decomposed, putrid, or otherwise unfit for food, and all extraneous material.

(e) Offal from picking tables shall not be piled on the floor, but shall be placed in suitable containers for frequent removal, or shall be removed by flumes, conveyors, or chutes. Offal, debris, or refuse from any source whatever shall not be allowed to accumulate in or about the establishment.

(f) Shrimp shall be picked into flumes that immediately remove the picked meats from the picking tables; except that shrimp may be picked into seamless containers of not more than 3 pints capacity if the picked meats are not held in such containers for more than 20 minutes before being flumed or conveyed

from the picking tables. If shrimp are picked into such containers, the containers shall be cleaned and sanitized as often as may be necessary to maintain them in a sanitary condition, but in no case less frequently than every 2 hours. Whenever a picker is absent from his or her post of duty, the container used by such picker shall be cleaned and sanitized before picking is resumed. For the purposes of this paragraph, the term "picked" shall include the operation whereby a portion of the shell is removed, leaving the tail in place, and the back of the shrimp is sliced open to remove the alimentary canal or vein.

(g) Picked shrimp being transported from one building to another shall be properly covered and protected against contamination.

(h) From the time of delivery to the establishment up to the time of final processing, shrimp shall be handled expeditiously and under such conditions as to prevent contamination or spoilage. Shrimp other than that to be canned shall be precooled immediately after the final cleaning or blanching operation to a temperature not exceeding 50° F. if it is to be packaged immediately, or to a temperature not exceeding 40° F. if it is not to be packaged immediately. If such shrimp are to be frozen, they shall be placed in the freezing compartment within 1 hour after final preparation.

(i) If batter is employed, it shall be used within 1 hour after it is prepared. The temperature of the batter shall not exceed 50° F.

(j) The packer shall destroy for food purposes under the immediate supervision of the inspector all shrimp in his possession condemned by the inspector as filthy, decomposed, putrid, or otherwise unfit for food. Shrimp condemned on boat or unloading platform shall not be taken into the icebox or picking room.

(k) Raw materials other than shrimp that enter into the finished product shall not be used if condemned by the inspector as unfit for food. Such condemned raw materials shall be segregated from usable materials and be held for disposal as directed by the inspector, or they may be destroyed forthwith by the packer if he so desires.

(l) All portions of the establishment shall be adequately lighted to enable the inspector to perform his duties properly.

(m) All floors and other parts of the establishment, including unloading platforms, and all fixtures, equipment, and utensils shall be cleaned as often as may be necessary to maintain them in a sanitary condition. Containers for mixing or holding batter shall be adequately cleaned and sanitized before they are used for a new batch of batter. Equipment for applying batter shall be adequately cleaned and sanitized at least once each hour while in operation.

(n) The packer shall require all employees handling shrimp to wash and sanitize their hands after each absence from post of duty, and to observe other proper habits of cleanliness.

(o) The packer shall not knowingly employ in or about the establishment any person afflicted with an infectious or contagious disease, or with any open sores on exposed portions of the body.

§ 155.8 Code marking.

- (a) Perma-

nently legible code marks shall be placed on all immediate containers at the time of packaging. Such marks shall show at least:

- (1) The date of packing;
- (2) The establishment where packed; and
- (3) The size of the shrimp when such shrimp are graded for size and are not in containers through which they are clearly visible.

Corresponding code marks shall also be placed on the master cartons containing individual packages of shrimp other than canned.

(b) Keys to all code marks shall be given to the inspector.

(c) Each lot shall be stored separately pending final inspection, with a space of not less than 6 inches between stacks of each lot. For the purposes of the regulations in this part, all cans or other containers bearing the same code marks shall be regarded as comprising a lot.

§ 155.9 Processing. (a) The closure of the can or other immediate container and the time and temperature of sterilizing the canned shrimp shall be adequate to prevent bacterial spoilage.

(b) The following times and temperatures shall be the minimums employed for the containers indicated:

DRY PACK

Kind of container and liner	Size	Initial temperature	Time at 240° F.	Time at 250° F.
Tin: 1-piece liner	211 x 400 and smaller	70° F.	Min-utes 80	Min-utes 60
	... do ...	70° F.	70	60
No liner	307 x 208	70° F.	70	60
	307 x 400	70° F.	75	65

WET PACK

Kind of container and size	Initial temperature	Time at 240° F.	Time at 250° F.
Tin: 211 x 400 (and smaller)	90° F.	25	13
307 x 208	90° F.	25	13
307 x 400	90° F.	25	13
Glass: 502 x 510	90° F.	27	16
Glass: 2 to 9 fluid ounces, inclusive		22	14

For wet-pack shrimp in cans 307 x 400 and smaller, a cook of 12 minutes at 250° F. and for wet-pack shrimp in cans 502 x 510, a cook of 15 minutes at 250° F. may be approved if adequate provisions are made to insure an initial temperature of not less than 120° F. in each individual can. For the purposes of this section, initial temperature is defined as the average temperature of the contents of the container at the moment steam is admitted to the sterilizing retort.

(c) For steam cook, blow-off vent shall be open during the coming-up period until the mercury thermometer registers at least 215° F. Bleeders shall emit steam during the entire cooking period.

(d) The method of freezing is not specified by the regulations in this part. Whatever method is used must be such as will produce a hard-frozen product in a sufficiently short time to prevent de-

composition. Bulk packages containing 5 pounds or more of shrimp per package shall be hard frozen within 24 hours; smaller packages should be hard frozen within 12 hours. After freezing, the shrimp shall be stored in such a manner that its temperature does not exceed 0° F., and shall be handled in such manner as will maintain the hard-frozen condition.

(e) The storage temperatures for shrimp that are not frozen or canned are as follows:

(1) Cooked and peeled shrimp shall be stored at a room temperature not exceeding 35° F.

(2) Raw headless shrimp shall be stored at a room temperature not exceeding 35° F., except that it may be stored at a higher room temperature if sufficiently iced at all times to prevent spoilage.

(f) The inspector shall identify each record on the thermometer chart with the code mark of the lot to which such record relates and the date of such record. The Administration shall keep such charts for at least 5 years, and upon request shall make them available to the packer.

(g) The packer shall keep for at least 1 year all shipping records covering shipments from each lot, and upon request shall furnish such records to any inspector of the Administration.

§ 155.10 Examination after processing. (a) Adequate samples shall be drawn by the inspector from each lot of processed shrimp and shall be examined to determine whether or not such processed shrimp conforms to all requirements of the Federal Food, Drug, and Cosmetic Act, amendments thereto, and regulations thereunder.

(b) The packer shall destroy for food purposes, under the immediate supervision of the inspector, all processed shrimp condemned by the inspector as not complying with § 155.9 (a), or as filthy, decomposed, putrid, or otherwise unfit for food.

§ 155.11 Labeling. (a) Labels on shrimp packed and certified under §§ 155.1 through 155.14 may bear a mark attesting to such packing and certification. Depending upon the type of processing, such marks, if used, shall read as follows:

(1) For canned shrimp: "Production supervised by U. S. Food and Drug Administration."

(2) For frozen shrimp: "Packing and freezing supervised by U. S. Food and Drug Administration. Perishable product—Not warranted against mishandling after freezing."

(3) For fresh, iced, or refrigerated shrimp: "Packing supervised by U. S. Food and Drug Administration. Perishable product—Not warranted against mishandling after packing."

Such marks if used shall be plainly and conspicuously displayed in type of uniform size and style on a strongly contrasting uniform background. The marks referred to in subparagraphs (2) and (3) of this paragraph shall not be used on the master carton unless such marks will be defaced by the opening of the cartons.

(b) Labels on inspected processed shrimp, other than canned shrimp, not bearing the marks referred to in paragraph (a) (2) and (3) of this section, and all master cartons for inspected shrimp other than canned shrimp, shall bear the statement "Perishable—Keep frozen" or "Perishable—Keep refrigerated," whichever is applicable to the product.

(c) Two proofs, or one proof and one photostat thereof, or eight specimens of all labeling intended for use on inspected shrimp, or on or within the cases therefor, shall be submitted to the Administration for approval. If proofs or photostat and proof are submitted, eight specimens of the labeling shall be sent to the Administration after printing. The Administration is authorized to approve labeling for use on or with processed shrimp inspected under §§ 155.1 through 155.14; approval shall be subject to the condition that such labeling shall be so used as to comply with the provisions of the Federal Food, Drug, and Cosmetic Act, amendments thereto, and regulations thereunder. The Administration is also authorized to revoke any such approval for cause. The Administration shall not approve labeling for processed shrimp intended for export under the provisions of § 155.12 (e).

(d) No commercial brand or brand name appearing on labeling approved as authorized under paragraph (c) of this section and bearing the marks described in paragraph (a) of this section, and no labeling simulating any such approved labeling, shall be used, after such approval, on processed shrimp other than that which has been handled, prepared, packed, and stored in compliance with all provisions of §§ 155.1 through 155.14; but this section shall not apply to any packer's labeling not bearing such mark after termination of inspection or withdrawal thereof as authorized by § 155.14 or to any distributor's labeling not bearing such mark after written notice by the owner thereof to the Administration that the use of such labeling on inspected processed shrimp has been discontinued and will not be resumed.

(e) Shrimp labeling authorized by paragraph (a) of this section or approved under paragraph (c) of this section shall be used only as authorized by §§ 155.1 through 155.14. Unauthorized use of such labeling renders the user liable to the penalties prescribed by the Federal Food, Drug, and Cosmetic Act, as amended.

§ 155.12 Certificates of inspections; warehousing and export permits. (a) After finding that the processed shrimp comprising any parcel has been handled, prepared, and packed in compliance with all provisions of §§ 155.1 through 155.14, bears labeling approved as authorized under § 155.11 (c), and complies with all the provisions of the Federal Food, Drug, and Cosmetic Act, amendments thereto, and regulations thereunder, the inspector shall issue a certificate showing that such processed shrimp so complies. The certificate shall specify the code marks to which it applies, the quantity of the parcel so marked, the place where such parcel is stored, the size of the shrimp, the size and kind of containers, the type of pack, whether or not it is fancy grade, the condition of the shrimp if it is broken or if it is substandard in fill, and, if such be the case, that it is intended for export under paragraph (e) of this section. When any provision of the agreement is violated, the Administration may revoke any permit issued pursuant to such agreement, and may also revoke its approval of the application for warehousing or cold storage which accompanied such agreement.

(b) Unless covered by certificate, processed shrimp stored under the authority of paragraph (c) of this section shall be moved from the warehouse or cold storage plant where stored only for restorage under such authority, or for return upon written permission of the

(c) Applications to move unlabeled processed shrimp for storage in a warehouse or cold storage plant elsewhere than in the establishment where such shrimp was processed shall be on forms supplied by the Administration. The application shall give the name and location of the warehouse or cold storage plant in which such processed shrimp is to be stored, and shall be accompanied by an agreement signed by the operator of such warehouse or cold storage plant that inspectors shall have free access at all times to all processed shrimp so stored and that conditions which will preserve the identity of each parcel of such processed shrimp shall be continuously maintained pending issuance of a certificate thereon or removal as authorized by paragraph (d) of this section.

If such application is approved and it appears to the inspector that the processed shrimp comprising any parcel has been packed in compliance with §§ 155.1 through 155.14 and conforms, except for the absence of labeling, to all requirements of the Federal Food, Drug, and Cosmetic Act, amendments thereto, and regulations thereunder, the inspector shall issue to the applicant, on his request, a warehousing permit covering such processed shrimp. Such permit shall specify the code marks to which it applies, the quantity of the parcel so marked, the places from and to which such parcel is to be moved, the size of the shrimp, the size and kind of containers, the type of pack, whether or not it is fancy grade, the condition of the shrimp if it is broken or if it is substandard in fill, and, if such be the case, that it is intended for export under paragraph (e) of this section. When any provision of the agreement is violated, the Administration may revoke any permit issued pursuant to such agreement, and may also revoke its approval of the application for warehousing or cold storage which accompanied such agreement.

(d) Unless covered by certificate, processed shrimp stored under the authority of paragraph (c) of this section shall be moved from the warehouse or cold storage plant where stored only for restorage under such authority, or for return upon written permission of the

inspector to the establishment where processed, or for export authorized under paragraph (e) of this section, or for destruction as provided by § 155.10 (b).

(e) An application to export processed shrimp under the provisions of section 801 (d) of the act shall be accompanied by the original or a verified copy of the specifications of the foreign purchaser; if required by the Administration, evidence showing that such processed shrimp is not in conflict with the laws of the country to which it is intended for export; and, if shipment of labeled processed shrimp is specified or directed, eight specimens of the labeling therefor. If processed shrimp prepared or packed according to such specifications is not in conflict with the laws of such country, the Administration shall direct the inspector to issue to the applicant an export permit covering such processed shrimp comprising any parcel ordered by such purchaser under such specifications, when the inspector finds that such processed shrimp was packed in compliance with the requirements of §§ 155.1 through 155.14 regarding sanitary conditions and processing; is not filthy, decomposed, putrid, or otherwise unfit for food; accords to such specifications; and is labeled on the outside of the shipping package to show that it is intended for export. Such permit shall specify the code marks to which it applies and the quantity of the parcel so marked, and shall show that such processed shrimp was packed under sanitary conditions, is wholesome, and accords to such specifications. The applicant shall furnish to the inspector documentary evidence showing the exportation of all such processed shrimp.

§ 155.13 *Inspection fees.* (a) (1) Except as otherwise provided by the regulations in this part, an initial payment of \$500.00 shall accompany each application; thereafter, eight additional advance payments of \$500.00 shall be made on or before the first day of each month beginning July 1 and continuing through February 1 for the regular inspection period; except that the Administration may require the full amount of advance payments prescribed by this paragraph to accompany the application of an applicant who has defaulted in any payment due for any prior packing season.

(2) Whenever it is determined, without hearing, by the Administration that an establishment having the inspection service has been damaged by wind, fire, flood, or other calamity, to such an extent that packing operations cannot be resumed before the end of the fiscal year then current, no advance payments falling due after such calamity shall be required from the packer for that fiscal year; but whenever it is determined, without hearing, by the Administration that an establishment having the inspection service has been so damaged by any such calamity that operations must be suspended temporarily, but can be resumed before the end of the fiscal year then current, advance payments falling due after such calamity and before the month of resumption of operations shall be postponed until operations are resumed, and thereupon shall be paid in equal monthly installments during the

period between the time of resumption of operations and June 1 of the fiscal year then current: *Provided*, That in the event of a determination described in this subparagraph the total payments and deposits made by the packer involved shall be charged with the cost of the service made available for the establishment without regard to the method provided hereinfor for computing charges against payments and deposits for shrimp received, and the balance of the total payments and deposits for shrimp received remaining after such charges shall be refunded by the Administration to the packer after the completion of the fiscal year.

(3) Each application for an extension inspection period of 1 month shall be accompanied by a payment of \$600.00, and at subsequent monthly intervals thereafter additional payments of \$600.00 shall be made; but if the final payment is to cover a period of less than 30 days, then such payment shall be at the rate of \$20.00 for each day of such period.

(b) (1) In addition to the payments prescribed in paragraph (a) of this section, advance deposits based upon the quantity of shrimp received by the subscribing establishment shall be made to underwrite adequately the cost of the inspection service. Such deposits shall be paid in advance in amounts of not less than \$300.00, unless the Administration on an estimate of receipt of shrimp authorizes other amounts, and shall be computed at the rate of 20 cents per 100 pounds of whole raw shrimp, or 35 cents per 100 pounds of raw headless shrimp, received by the plant. For the purposes of this section, the quantity of shrimp received by an establishment shall be determined by weighing on a suitable scale immediately after such shrimp leaves the initial inspection belt: *Provided*, however, that other arrangements for determining accurately the weight of shrimp received may be employed if approved in advance by the Administration. A record of such weights shall be maintained and made available to the inspector upon his request. Any advance deposits in excess of those required for actual shrimp received for the fiscal year (July 1 through June 30) shall be refunded to the packer by the Administration after the completion of the fiscal year.

(2) Deposits for shrimp received as computed under paragraph (b) (1) of this section, together with production deposits prescribed for oysters canned under § 155.28 (b) (1), shall be charged with the balance of the total cost of the inspection service that has not been provided for by the combined total payments under paragraph (a) of this section and paragraph (a) of § 155.28, in the case of canned oysters. The balance of the deposits remaining for shrimp received after such charges have been made shall be refunded by the Administration to the packers after the completion of the fiscal year, in the ratio which each packer's deposits for shrimp received and production deposits for oysters canned bears to the combined total of such deposits for shrimp received and oysters canned by all packers for the fiscal year.

(3) When inspection service is withdrawn from an establishment as authorized under § 155.14 (a), the Administration shall not return to the packer any advance payments and/or deposits required to the date of withdrawal of the service. Such payments and/or deposits shall be charged with the cost of the service made available for the establishment, without regard to the method described in this section, and the balance which would have accrued to such packer shall remain to the credit of the Food and Drug Administration in the special account "Salaries and Expenses, Certification and Inspection Services."

(c) A separate fee shall be paid to cover all expenses, incurred in accordance with the regulations of the United States Government, for salary, travel, subsistence, and other purposes incident to inspection described under § 155.4 (b) of suppliers of any materials to establishments under the inspection service or for the purpose of issuing a certificate or warehousing or export permit on processed shrimp stored or held at any place other than an establishment to which a sea food inspector is then assigned.

(d) When the processing plant and the warehouse or cold storage plant of an establishment are located at different points of such distance apart that transportation between them is required for the inspector to perform his duties in the establishment, the packer shall furnish such transportation or shall pay a separate fee to cover all expenses thereof.

(e) All payments required by the regulations in this part shall be by bank draft or certified check, collectible at par, drawn to the order of the Treasurer, United States, and payable at Washington, D. C. All such drafts and checks, except those for the payment required by § 155.1 (a), shall be delivered to the Food and Drug Administration, Federal Security Agency, Washington, D. C., whereupon after appropriate records thereof have been made, they shall be transmitted to the Chief Disbursing Officer, Division of Disbursement, Treasury Department, for deposit to the special account "Certification and Inspection Services, Food and Drug Administration."

(f) All refunds to the packers shall be by check drawn on the Treasury of the United States pursuant to refund vouchers duly certified and approved by the designated administrative officers.

§ 155.14 *Suspension and withdrawal of inspection service.* (a) The Administration may suspend and the Administrator may withdraw inspection service in any establishment:

(1) Upon failure of the packer to comply with any applicable provision of §§ 155.1 through 155.14; or

(2) Upon the dissemination by the packer or any person in privity with him of any representation that is false or misleading in any particular regarding the application to any sea food of the inspection service provided by the regulations in this part.

(b) When inspection service is suspended in an establishment, as authorized by paragraph (a) of this section, the

Administration shall not lengthen the inspection period in such establishment to compensate for any of the time of suspension.

SUBPART B—INSPECTION OF CANNED OYSTERS

§ 155.16 Application for inspection service. (a) Applications for inspection service on canned oysters under the provisions of section 702a of the Federal Food, Drug, and Cosmetic Act shall be on forms supplied by the Food and Drug Administration, hereinafter referred to as the Administration. No application for a regular inspection period filed with the Administration after September 1 preceding such period in any year shall be considered unless the applicant shows substantial cause for failure to file such application on or before September 1 of such year. The opening date of the canning season in each State shall be the date set by the State agency responsible for controlling the opening date of the canning season in that State. A separate application shall be made for each inspection period in each establishment for which the service is applied. Each application for a regular inspection period shall be accompanied by a payment of \$600.00 as prescribed by § 155.28 (a) (1). Such deposit shall be paid in the manner prescribed by § 155.28 (e).

(b) For the purpose of §§ 155.16 through 155.29, an establishment is defined as a factory where oysters may be processed and warehouses under the control and direction of the packer where such canned oysters are stored.

§ 155.17 Granting or refusing inspection service; cancellation of application. (a) The Federal Security Administrator may grant the inspection service applied for upon determining that the establishment covered by such application complies with the requirements of § 155.21.

(b) The Administrator may refuse to grant the inspection service at any establishment for cause. In case of refusal the applicant shall be notified of the reason therefor and shall have returned to him all advance payments and production deposits made, less any expenses incurred for preliminary inspection of the establishment, or for other purposes incident to such application.

(c) The applicant, by written notice to the Administrator, may withdraw his application for inspection service before an inspector is assigned to the establishment. In case of such withdrawal, the Administrator shall return to such applicant all advance payments and production deposits made, less any salary and other expense incurred incident to such application.

§ 155.18 Inspection periods. (a) The regular inspection period in each establishment in which inspection service under §§ 155.16 through 155.29 is granted consists of 4 consecutive months. The date of the beginning of such regular inspection period shall be regarded as the date, on or after October 1 but not later than March 1, specified for the beginning of the service in the application therefor, or such other date as may be specified by amendment to such application and approved; but if the Administrator is not prepared to begin the

service on the specified date then the period shall start on the date on which service is begun.

(b) Extension inspection periods shall begin at the close of the preceding inspection period. Extension inspection periods may be granted for periods of 1 month and/or fractional parts of 1 month, but in no case less than 1 day. Extension inspection periods for 1 month may be granted in such establishment if application therefor, accompanied by a payment of \$600.00, as prescribed by § 155.28 (a) (3), is made at least 2 weeks in advance of the close of such preceding inspection period. Applications for extension inspection periods for fractional parts of a month may be accepted when accompanied by the payment prescribed by § 155.28 (a) (3) for such extensions. No regular or extension inspection period shall extend beyond June 30 of any year.

(c) Upon request of the packer, and with the approval of the Administration, such service during any inspection period may be transferred from one establishment to another to be operated by the same packer; but such transfer shall not serve to lengthen any inspection period or to take the place of an extension inspection period. In case of such transfer the packer shall furnish all necessary transportation of inspectors.

(d) The inspection service shall be continuous throughout the inspection period.

§ 155.19 Assignment of inspectors. (a) An initial assignment of at least one inspector shall be made to each establishment in which inspection service under §§ 155.16 through 155.29 is granted. Thereafter, the Administration shall adjust the number of inspectors assigned to each establishment and tour of duty of each inspector to the requirements for continuous and efficient inspection.

(b) Any inspector of the Administration shall have free access at all times to all parts of the establishment and to all fishing and freight boats and other conveyances dredging oysters for or transporting oysters to such establishments.

§ 155.20 Uninspected oysters excluded from inspected establishments. (a) No establishment to which inspection service on canned oysters has been granted shall at any time thereafter can oysters that have not been so inspected, or handle or store in such establishment any canned oysters that have not been so inspected; but this paragraph shall not apply to an establishment after termination of inspection service therein, or withdrawal therefrom as authorized by § 155.29.

(b) All oysters delivered to or held in an inspected establishment may be subject to inspection, but certificates of inspection shall be issued under § 155.27 only on canned oysters.

§ 155.21 General requirements for plant and equipment. (a) All exterior openings of the cannery, including those of the shucking sheds, shall be adequately screened, and roofs and exterior walls shall be tight. When necessary, fly traps, fans, blowers, or other approved insect-control devices shall be installed.

(b) Shucking sheds and packing rooms shall be separate, and fixtures and equipment shall be so constructed and arranged as to permit thorough cleaning. Such sheds and rooms shall be adequately lighted and ventilated, and the floors shall be tight and arranged for thorough cleaning and proper drainage. Open drains from shucking shed shall not enter packing room. If shucking shed and packing room are in separate buildings, such buildings shall be not more than 100 yards apart, unless adequate provisions are made to enable efficient inspection.

(c) All surfaces of washers, tanks, belts, tables, flumes, utensils, and other equipment with which unshucked or shucked oysters come in contact after delivery to the establishment shall be of metal or of other smooth nonporous and easily cleanable material, provided such materials are not lead or other toxic substances. Metal seams shall be smoothly soldered or smoothly welded. Shucking tables shall be so constructed as to preclude contamination of working surfaces or products thereon from foot traffic or wheel-barrows or other containers used in delivering steamed oysters to such tables.

(d) Adequate supplies of suitable detergents and sanitizing agents approved by the Administration; clean, unpolluted running water; and steam shall be provided for washing, cleaning, and otherwise maintaining the establishment in a sanitary condition.

(e) Adequate toilet facilities of sanitary type which comply fully with applicable State laws and local ordinances shall be provided.

(f) An adequate number of sanitary washbasins, with liquid or powdered soap, shall be provided in both the shucking shed and the packing room. Paper towels shall be provided in the packing room.

(g) Signs requiring employees handling oysters to wash their hands after each absence from post of duty shall be conspicuously posted in the shucking shed and packing room and elsewhere about the premises as conditions require.

(h) One or more suitable washing devices and one or more suitable inspection belts shall be installed for the washing and subsequent inspection of the oysters before delivery for steaming or other means of opening.

(i) If steam boxes are used for opening the oysters, they shall be provided with adequate steam inlets, exhausts, drains, a safety valve, and a pressure gauge.

(j) Suitable means shall be provided for removing shells and debris from shucking shed.

(k) One or more suitable devices shall be provided for removing shell and grit from shucked oysters, for washing such oysters, and for their subsequent drainage.

(l) One or more suitable inspection belts shall be installed for the inspection of shucked oysters.

(m) Equipment shall be provided for code-marking cans.

(n) An automatic container-counting device shall be installed in each cannery line.

(o) Each sterilizing retort shall be

fitted with at least the following equipment:

(1) An automatic control for regulating temperatures.

(2) An indicating mercury thermometer of a range from 170° F. to 270° F., with scale divisions not greater than 2° F., installed either within a fitting attached to the shell of the retort or within the door or shell of the retort. If the thermometer is installed within a fitting, such fitting shall communicate with the chamber of the retort through an opening at least 1-inch in diameter. Such fitting shall be equipped with a bleeder at least $\frac{1}{8}$ -inch in diameter. If the thermometer is installed within the door or shell of the retort, the bulb shall project at least two-thirds of its length into the principal chamber.

(3) A recording thermometer of a range from 170° F. to 270° F., with scale divisions not greater than 2° F. The bulb of such thermometer shall be installed as prescribed for the indicating mercury thermometer. The case which houses the charts and recording mechanism shall be provided with an approved lock, all keys to which shall be in the sole custody of the inspector.

(4) A pressure gauge of a range from 0 to 30 pounds, with scale divisions not greater than 1 pound and diameter of not less than 5 inches. Such gauge shall be connected to the chamber of the retort by a short gooseneck tube. The gauge shall be not more than 4 inches higher than the gooseneck.

(5) A blow-off vent of at least $\frac{1}{4}$ -inch inside diameter in the top of the retort.

(6) A $\frac{1}{8}$ -inch bleeder in top of the retort.

(p) Suitable space and facilities shall be provided for the inspector to prepare records and examine samples and for the safekeeping of records and equipment.

§ 155.22 General operating conditions. (a) The decks and holds of all boats tonging or dredging oysters for or transporting oysters to an inspected establishment, and the bodies of other conveyances so transporting oysters shall be kept in a sanitary condition. Such boats shall be equipped with adequate means for protecting the oysters against contamination with bilge water.

(b) Inspected establishments, freight boats, and other conveyances serving such establishments shall accept only live, clean, sound oysters taken from unpolluted areas. When necessary, ice or other suitable refrigeration shall be provided to prevent spoilage.

(c) After delivery of each load of oysters to the establishment, decks and holds of each boat and the body of each other conveyance or container making such delivery shall be washed down with clean, unpolluted water, and all debris shall be cleaned therefrom before such boat or other conveyance or container leaves the establishment premises.

(d) Before being steamed or opened by other means, the oysters shall be washed with clean, unpolluted water and then passed over the inspection belt and culled to remove dirty, muddy, dead, or decomposed oysters and extraneous material. Muddy oysters may be returned to the washer for rewashing.

(e) As often as is necessary to maintain sanitary conditions, unloading plat-

forms and equipment shall be washed with clean, unpolluted water, and all debris shall be cleaned therefrom.

(f) Shells shall be removed from the shucking shed continuously.

(g) Offal, debris, or refuse from any source whatever shall not be allowed to accumulate in the cannery or, except for shells, about the premises. Shells shall not be allowed to accumulate about the premises in such a manner as to create a nuisance.

(h) The delivery of steamed oysters to shuckers by means of manually rolling, trundling, or wheelbarrowing such oysters on or above shucking tables will not be permitted.

(i) Shucking knives and shucking cups shall be thoroughly washed with soap and water and chlorinated before use each day. Chlorine solution shall be maintained at a strength of 200 parts per million.

(j) No shucked oysters shall be returned to shucker after delivery to the weigher. Shucking cups shall be cleaned and sanitized after each delivery to the weigher.

(k) Shucked oysters being transported from one building to another shall be properly covered and protected against contamination.

(l) The shucked oysters shall be washed, separated from the shell and grit by suitable devices, and then immediately drained. The time of washing shall not exceed the minimum time necessary for cleansing.

(m) From the time of delivery to the cannery up to the time of final processing, oysters shall be handled expeditiously and under such conditions as to prevent contamination or spoilage.

(n) The packer shall destroy for food purposes under the immediate supervision of the inspector all oysters in his possession condemned by the inspector as filthy, decomposed, putrid, or unfit for food. Oysters condemned on the boat or on the unloading platform shall not be taken into the cannery, but shall be either destroyed or returned to a bedding ground.

(o) All portions of the establishment shall be adequately lighted to enable the inspector to perform his duties properly.

(p) All floors and other parts of the establishment including unloading platforms, and all fixtures, equipment, and utensils shall be cleaned as often as may be necessary to maintain them in a sanitary condition.

(q) The packer shall require all employees handling oysters to wash their hands after each absence from post of duty and to observe other proper habits of cleanliness.

(r) The packer shall not knowingly employ in or about the establishment any person afflicted with an infectious or contagious disease or with any open sores on exposed portions of the body.

§ 155.23 Code marking. (a) Code marks shall be affixed to all cans and other immediate containers before they are placed in the processing retorts. Such marks shall show at least:

- (1) The date of packing;
- (2) The establishment where packed;
- (3) The conveyance; and
- (4) The size of the oysters when such

oysters are graded for size.

(b) Keys to all code marks shall be given to the inspector.

(c) Each lot shall be stored separately pending final inspection, with a space of not less than 6 inches between stacks of each lot. For the purposes of the regulations in this part all cans or other containers bearing the same code marks shall be regarded as comprising a lot.

§ 155.24 Processing. (a) The closure of the can or other immediate container and the time and temperature of sterilizing the canned oysters shall be adequate to prevent bacterial spoilage.

(b) The following times and temperatures shall be the minimum employed for the containers indicated:

CANNED OYSTERS

Size	Initial temperature (°F.)	Time at 240° F.	Time at 230° F.
211 x 212			Minutes
211 x 300	70	24	14
211 x 306	130	23	13
211 x 400			11
307 x 400	70	28	
307 x 409	130	27	13

For the purposes of this section, initial temperature is defined as the average temperature of the contents of the container at the moment steam is admitted to the sterilizing retort.

(c) The blow-off vent shall be open during the coming-up period until the mercury thermometer registers at least 215° F. Bleeders shall emit steam during the entire cooking period.

(d) The inspector shall identify each record on the thermometer chart with the code mark of the lot to which such record relates and the date of such record. The Administration shall keep such charts for at least 5 years, and upon request shall make them available to the packer.

(e) The packer shall keep for at least 1 year all shipping records covering shipments from each lot, and upon request shall furnish such records to any inspector of the Administration.

§ 155.25 Examination after canning. (a) Adequate samples shall be drawn by the inspector from each lot of canned oysters and shall be examined to determine whether or not such canned oysters conform to all requirements of the Federal Food, Drug, and Cosmetic Act, amendments thereto, and regulations thereunder.

(b) The packer shall destroy for food purposes, under the immediate supervision of the inspector, all canned oysters condemned by the inspector as not complying with § 155.24, or as filthy, decomposed, putrid, or otherwise unfit for food.

§ 155.26 Labeling. (a) Labels on canned oysters packed and certified under §§ 155.16 through 155.29 may bear the mark "Production Supervised by the U. S. Food and Drug Administration." Such mark, if used, shall be plainly and conspicuously displayed, in type of uniform size and style, on a strongly contrasting, uniform background.

(b) Two proofs, or one proof and one photostat thereof, or eight specimens of all labeling intended for use on inspected canned oysters or on or within the cases

therefor shall be submitted to the Administration for approval. If proofs or photostat and proof are submitted, eight specimens of the labeling shall be sent to the Administration after printing. The Administration is hereby authorized to approve labeling for use on canned oysters inspected under §§ 155.16 through 155.29. Approval shall be subject to the condition that such labeling shall be so used as to comply with the provisions of the Federal Food, Drug and Cosmetic Act, amendments thereto, and regulations thereunder. The Administration is also authorized to revoke any such approval for cause. The Administration shall not approve labeling for canned oysters intended for export under the provisions of § 155.27 (e).

(c) No commercial brand or brand name appearing on labeling approved as authorized under paragraph (b) of this section and bearing the mark described in paragraph (a) of this section, and no labeling simulating any such approved labeling, shall be used after such approval on canned oysters other than those that have been handled, prepared, and packed in compliance with all provisions of §§ 155.16 through 155.29; but this section shall not apply to any packer's labeling not bearing such mark after termination of inspection or withdrawal thereof as authorized by § 155.29 or to any distributor's labeling not bearing such mark after written notice by the owner thereof to the Administration that the use of such labeling on inspected canned oysters has been discontinued and will not be resumed.

(d) Canned-oyster labeling authorized by paragraph (a) of this section or approved under paragraph (b) of this section shall be used only as authorized by §§ 155.16 through 155.29. Unauthorized use of such labeling renders the user liable to the penalties prescribed by the Food, Drug, and Cosmetic Act, as amended.

§ 155.27 Certificates of inspection, warehousing and export permits. (a) After finding that the canned oysters comprising any parcel have been handled, prepared, and packed in compliance with all provisions of §§ 155.16 through 155.29; bear labeling approved as authorized under § 155.26 (b); and comply with all the provisions of the Federal Food, Drug, and Cosmetic Act, amendments thereto, and regulations thereunder, the inspector shall issue a certificate showing that such canned oysters so comply. The certificate shall specify the code marks to which it applies, the quantity of the parcel so marked, the place where such parcel is stored, the size and kind of containers, the commercial brand name on the labels, the condition of the oysters if they are broken or if they are substandard in fill, and the destination of the lot, if known. Such certificate shall become void if such labeling is removed, altered, obliterated, or replaced; but such canned oysters may be relabeled under supervision of an inspector and recertified if the inspector finds that, after being relabeled, they comply with the requirements laid down by this paragraph for the issuance of a certificate.

(b) Unless covered by certificate, canned oysters shall be moved from an inspected establishment only for storage authorized under paragraph (c) of this section, or for export authorized under paragraph (e) of this section, or for destruction as provided by § 155.25 (b).

(c) Applications to move unlabeled canned oysters for storage in a warehouse elsewhere than in the establishment where such oysters were packed shall be on forms supplied by the Administration. The application shall give the name and location of the warehouse in which such canned oysters are to be stored, and shall be accompanied by an agreement signed by the operator of such warehouse that inspectors shall have free access at all times to all canned oysters so stored, and that conditions which will preserve the identity of each parcel of such canned oysters shall be continuously maintained pending issuance of a certificate thereon or removal as authorized by paragraph (d) of this section. If such application is approved and it appears to the inspector that the canned oysters comprising any parcel have been packed in compliance with §§ 155.16 through 155.29 and conform, except for the absence of labeling, to all requirements of the Federal Food, Drug, and Cosmetic Act, amendments thereto, and regulations thereunder, the inspector shall issue to the applicant, on his request, a warehousing permit covering such canned oysters. Such permit shall specify the code marks to which it applies, the quantity of the parcel so marked, the place from and to which such parcel is to be moved, the size of the oysters, the size and kind of containers, and the condition of the oysters if they are broken or if they are substandard in fill and, if such be the case, that they are intended for export under paragraph (e) of this section. When any provision of the agreement is violated, the Administration may revoke any permit issued pursuant to such agreement, and may also revoke its approval of the application for warehousing which accompanied such agreement.

(d) Unless covered by certificate, canned oysters stored under the authority of paragraph (c) of this section shall be moved from the warehouse where stored only for re-storage under such authority, or for return upon written permission of the inspector to the establishment where packed, or for export authorized under paragraph (e) of this section, or for destruction as provided by § 155.25 (b).

(e) An application to export canned oysters under the provisions of section 801 (d) of the act shall be accompanied by the original or a verified copy of the specifications of the foreign purchaser; if required by the Administration, evidence showing that such canned oysters are not in conflict with the laws of the country to which they are intended for export; and, if shipment of labeled canned oysters is specified or directed, eight specimens of the labeling therefor. If canned oysters prepared or packed according to such specifications are not in conflict with the laws of such country, the Administration shall direct the inspector to issue to the applicant an ex-

port permit covering such canned oysters comprising any parcel ordered by such purchaser under such specifications, when the inspector finds that such canned oysters were packed in compliance with the requirements of §§ 155.16 through 155.29 regarding sanitary conditions and processing; are not filthy, decomposed, putrid, or otherwise unfit for food; accord to such specifications, and are labeled on the outside of the shipping package to show that they are intended for export. Such permit shall specify the code marks to which it applies and the quantity of the parcel so marked, and shall show that such canned oysters were packed under sanitary conditions, are wholesome, and accord to such specifications. The applicant shall furnish to the inspector documentary evidence showing the exportation of all such canned oysters.

§ 155.28 Inspection fees. (a) (1) Except as otherwise provided by the regulations in this part, an initial payment of \$600.00 shall accompany each application; thereafter, three additional advance payments of \$600.00 each shall be made, as follows: One payment on or before the date of the beginning of the regular inspection period specified in the application for inspection; the remaining two payments on or before the first day of each succeeding month, except that the Administration may require the full amount of all advance payments prescribed by this paragraph to accompany the application of an applicant who has defaulted in any payment due for any prior packing season: *Provided*, That a packer who is concurrently receiving inspection service and making payments under the regulations for the inspection of processed shrimp shall not make any additional payments under this subparagraph.

(2) Whenever it is determined, without hearing, by the Administration that an establishment having the inspection service has been damaged by wind, fire, flood, or other calamity to such an extent that packing operations cannot be resumed before the end of the fiscal year then current, no advance payments failing due after such calamity shall be required from the packer for that fiscal year; but whenever it is determined, without hearing, by the Administration that an establishment having the inspection service has been so damaged by any such calamity that operations must be suspended temporarily; but can be resumed before the end of the fiscal year then current, advance payments failing due after such calamity and before the month of resumption of operations shall be postponed until operations are resumed, and thereupon shall be paid in equal monthly installments during the period between the time of resumption of operations and June 1 of the fiscal year then current: *Provided*, That in the event of a determination described in this subparagraph the total payments and production deposits made by the packer involved shall be charged with the cost of the service made available for the establishment, without regard to the method provided hereinafter for computing charges against payments and

production deposits, and the balance of the total payments and deposits remaining after such charges shall be refunded by the Administration to the packer after the completion of the fiscal year.

(3) Each application for an extension inspection period of 1 month shall be accompanied by a payment of \$600.00, and at subsequent monthly intervals thereafter additional payments of \$600.00 shall be made; but if the final payment is to cover a period of less than 30 days, then such payment shall be at the rate of \$20.00 for each day of such period.

(b) (1) In addition to the payments prescribed in paragraph (a) of this section, advance deposits based upon the quantity of oysters canned by the subscribing establishment shall be made to underwrite adequately the cost of the inspection service. Such deposits shall be paid in advance in amounts of not less than \$300.00, unless the Administration on an estimate of production authorizes other amounts, and shall be computed at the rate of 15 cents for each case of 48 cans, size 211 x 300. Any advance production deposits in excess of those required for actual oysters canned for the fiscal year (July 1 through June 30) shall be refunded to the packers by the Administration after the completion of the fiscal year.

(2) Production deposits as computed under subparagraph (1) of this paragraph, together with deposits for shrimp received as prescribed under § 155.13 (b) (1), in the case of processed shrimp, shall be charged with the balance of the total cost of the inspection service which has not been provided for by the combined total payments under paragraph (a) of this section and paragraph (a) of § 155.13, in the case of processed shrimp. The balance of the production deposits remaining after such charges have been made shall be refunded by the Administration to the packers after the completion of the fiscal year in the ratio which each packer's production deposits for oysters canned and deposits for

shrimp received bears to the combined total of such deposits for oysters canned and shrimp received by all packers for the fiscal year.

(3) When inspection service is withdrawn from an establishment as authorized under § 155.29 (a), the Administration shall not return to the packer any advance payments and/or deposits required to the date of withdrawal of the service. Such payments and/or deposits shall be charged with the cost of the service made available for the establishment, without regard to the method described in this section, and the balance that would have accrued to such packer shall remain to the credit of the Food and Drug Administration in the special account "Salaries and Expenses, Certification and Inspection Services."

(c) A separate fee shall be paid to cover all expenses incurred in accordance with the regulations of the United States Government, for salary, travel, subsistence, and for other purposes incident to inspection for the purpose of issuing a certificate or warehousing or export permit on canned oysters stored or held at any place other than an establishment to which a sea food inspector is then assigned.

(d) When the cannery and the cannery warehouse of an establishment are located at different points of such distance apart that transportation between them is required for the inspector to perform his duties in the establishment, the packer shall furnish such transportation or shall pay a separate fee to cover all expenses therefor.

(e) All payments required by the regulations in this part shall be by bank draft or certified check, collectable at par drawn to the order of the Treasurer, United States, and payable at Washington, D. C. All such drafts and checks, except those for the payment required by § 155.16 (a), shall be delivered to the inspector and promptly scheduled to the Food and Drug Administration, Federal Security Agency, Washington, D. C., whereupon after appropriate records

thereof have been made they shall be transmitted to the Chief Disbursing Officer, Division of Disbursement, Treasury Department, for deposit to the special account "Certification and Inspection Services, Food and Drug Administration."

(f) All refunds to packers shall be by check drawn on the Treasury of the United States pursuant to refund vouchers duly certified and approved by the designated administrative officers.

§ 155.29 *Suspension and withdrawal of inspection service.* (a) The Administration may suspend and the Administrator may withdraw inspection service in any establishment upon failure of the packer to comply with any applicable provision of §§ 155.16 through 155.29 or upon the dissemination by the packer or any person in privity with him of any representation that is false or misleading in any particular regarding the application to any sea food of the inspection service provided by the regulations in this part.

(b) When inspection service is suspended in an establishment, as authorized by paragraph (a) of this section, the Administration shall not lengthen the inspection period in such establishment to compensate for any of the time of suspension.

This order shall become effective 30 days following the date of its publication in the *FEDERAL REGISTER*.

Notice and public procedure are not necessary prerequisites to the promulgation of this order, and I so find, since the amendments, in part, adjust the basis of fees which it is necessary to charge in order to provide, equip, and maintain a self-liquidating sea food inspection service as required by law, and make minor changes in previous regulations.

Dated: April 10, 1953.

[SEAL] OVERTA CULP HOBBY,
Federal Security Administrator.



Department of the Interior

FARLEY NAMED DIRECTOR OF FISH AND WILDLIFE SERVICE: The appointment of John L. Farley of Seattle, Washington, as Director of the Fish and Wildlife Service was announced on April 17 by Secretary of the Interior Douglas McKay. He will succeed Albert M. Day, who has been offered another position in the Service.

Farley was born in Oxford, Ohio, April 9, 1892, and was graduated from State Teachers College, River Falls, Wisconsin, in 1910. He taught science in the Black River Falls, Wisconsin, high school for a short time and then served as superintendent of schools there. He later entered the University of Wisconsin and graduated with a B. S. in Electrical Engineering in 1917. He was commissioned as a second lieutenant in August 1917 and continued in the Army as a regular officer until December 1922.

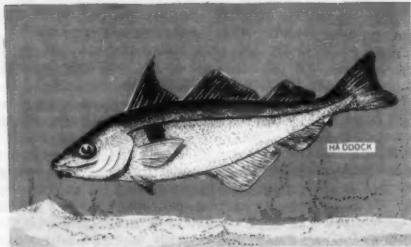
After military service, Farley was employed for 5½ years by the Pacific Gas and Electric Company in California as a sales engineer and in public relations work. From 1929 to 1935 he was executive officer of the California Division of Fish and Game; and until 1940 he was in community relations work with the Crown Zellerbach Corporation in Seattle, Washington.

Farley returned to the Army in September 1940 and commanded the 250th CA. He was commissioned a colonel in February 1942. He commanded regiments in Alaska and was Alaskan Department artillery officer. He left active Army Service in 1945 and returned to Crown Zellerbach. He retired as a colonel AUS in May 1952.

Farley is a member of the American Fisheries Society; past vice president of the International Association of Game and Fish Commissioners. He is a brother of Admiral Joseph F. Farley, former commandant of the United States Coast Guard.

FISH AND WILDLIFE SERVICE

HADDOCK FISHING REGULATIONS FOR NORTHWEST ATLANTIC: Regulations (effective June 1-December 31, 1953) affecting the taking of haddock (*Melanogrammus aeglefinus*) in the Northwest Atlantic were published by the U. S. Fish and Wildlife Service in the April 24 Federal Register. Taking of haddock by trawl nets or nets having a diagonally-stretched mesh less than 4½ inches when wet is prohibited in the Northwest Atlantic north of latitude 39°00' N. and west of longitude 42°00' W. by these Federal regulations.



The full text of the regulations as they appeared in the Federal Register follows:

Subchapter I—Northwest Atlantic Commercial Fisheries

PART 155—HADDOCK PROVISIONS

Basis and purpose. At its meeting held in St. Andrews, New Brunswick, Canada, June 30-July 9, 1952, the International Commission for the Northwest Atlantic Fisheries, a body created pursuant to Article II of the International Convention for the Northwest Atlantic Fisheries signed at Washington under date of February 8, 1949, adopted a proposal recommending that the Contracting Governments, in the interest of permitting an adequate escapement of immature haddock, take appropriate action to prohibit the taking of haddock in Sub-area 5 of the Convention waters with a trawl net having a mesh size of less than four and one-half inches. The proposal recommended further the adoption of a specific method of measuring mesh size and the exemption of vessels taking haddock for the purposes of scientific investigation from the proposed mesh restrictions. In its letter of July 15, 1952, which submitted the proposal to the Contracting Governments pursuant to Article VIII of the Convention, the Commission drew attention to the experimental nature of the proposed mesh size regulation and outlined a suggested research program to determine the effectiveness of the regulation following its adoption.

On February 13, 1953 the proposal was accepted by the Governments of the United States and Canada, in accordance with Article VII (7) of the International Convention for the Northwest Atlantic Fisheries and, in accordance with Article VIII (8) of the Convention, the proposal will become effective for all Contracting Governments on June 13, 1953. In accordance with section 4 (a) of the Northwest Atlantic Fisheries Act of 1950 (64 Stat. 1067, 16 U. S. C., 1946 ed., Supp. V, 981) regulations proposed by the Secretary of the Interior to implement the proposal were submitted to the Advisory Committee to the United States Commissioners of the International Convention for the Northwest Atlantic Commission on December 2, 1952, at which time the proposed regulations received the unanimous approval of the members of the Advisory Committee in attendance.

By notice of proposed rule making published in the FEDERAL REGISTER on December 30, 1952 (17 F. R. 11823), the public was invited to submit written data, views or arguments in connection with the proposed regulations to Albert M. Day, Director, Fish and Wildlife Service, Department of the Interior, Washington 25, D. C., not later than 60 days from the publication of the Notice in the FEDERAL REGISTER. Careful consideration has been given the views, data, and arguments received, and it has been determined that the regulations appear-

ing below should be promulgated to govern the use of trawling nets in the haddock fishery in the area described in the said regulations.

Effective midnight May 31, 1953, the following regulations, constituting new Subchapter I—Northwest Atlantic Commercial Fisheries, Part 155—Haddock Provisions, are prescribed for the year 1953 only:

Sec.	
155.1	Meaning of terms.
155.2	Vessel.
155.3	Haddock.
155.4	Haddock fishing.
155.5	Trawl net.
155.7	Period of application.
155.9	Restriction on fishing gear.
155.10	Measurement of mesh size.
155.11	Employment of devices to reduce mesh size prohibited.
155.15	Illegal possession of haddock.
155.16	Certain vessels exempted.

Authority: §§ 155.1 to 155.16 issued under sec. 7, 64 Stat. 1069; 16 U. S. C. 980.

§ 155.1 **Meaning of terms.** When used in the regulations in this part, unless the content otherwise requires, terms shall have the meanings ascribed hereinafter in this part.

§ 155.2 **Vessel.** The word "vessel" denotes every kind, type, or description of watercraft, aircraft, or other contrivance, subject to the jurisdiction of the United States, used, or capable of being used, as a means of transportation on water.

§ 155.3 *Haddock*. The word "haddock" denotes any fish of the species *Melanogrammus aeglefinus*.

§ 155.4 *Haddock fishing*. The words "haddock fishing" mean the catching, taking, or fishing for, or the attempted catching, taking, or fishing for, any fish of the species *Melanogrammus aeglefinus*.

§ 155.5 *Trawl net*. The words "trawl net" mean any large bag net dragged in the sea by a vessel or vessels for the purpose of taking fish.

§ 155.7 *Period of application*. The regulations in this part shall cease to have effect at midnight, December 31, 1953.

§ 155.9 *Restriction on fishing gear*. The use, for the purpose of taking haddock in the northwest Atlantic Ocean north of 39°00' north latitude and west of 42°00' west longitude, of a trawl net or nets, parts of nets or netting having in any part thereof a mesh size less than four and one-half inches is prohibited.

§ 155.10 *Measurement of mesh size*. For the purpose of § 155.9 mesh size shall

be deemed to be the average of any ten consecutive meshes of the trawl net selected at the discretion of the enforcement officer and measured individually stretched diagonally while wet, with a flat wedge-shaped gauge having a taper of two inches in nine inches and a thickness of three thirty-seconds of an inch, inserted into the mesh under a pressure of twelve pounds.

§ 155.11 *Employment of devices to reduce mesh size prohibited*. The use from any vessel engaged in haddock fishing in the area described in § 155.9 of any device or method which will obstruct the meshes of the trawl net or which will otherwise, in effect, diminish the size of said meshes is prohibited: *Provided*, That a protective covering may be attached to the underside only of the cod end alone of the net to reduce and prevent damage thereto.

§ 155.15 *Illegal possession of haddock*. The possession or transportation on any vessel at any one time of both a trawl net or nets, parts of nets or netting, the use of which is prohibited by § 155.9, and haddock in amounts in excess of five

thousand pounds or ten percent of all the fish on board such vessel, whichever is larger, is prohibited.

§ 155.16 *Certain vessels exempted*. Nothing contained in the regulations in this part shall apply to:

(a) Any vessel having in possession haddock in amount less than five thousand pounds or ten percent of all the fish on board such vessel, whichever is larger, taken incidentally to fishing for other species of fish.

(b) Any vessel duly authorized by the Director of the Fish and Wildlife Service to engage in haddock fishing for scientific purposes.

(c) Any vessel documented as a common carrier by the Government of the United States and engaged exclusively in the carriage of freight and passengers.

Issued at Washington, D. C., this 18th day of April 1953.

Douglas McKay,
Secretary of the Interior.

Originally the regulations were scheduled to take effect March 15, 1953. However, since a sufficient number of larger-mesh nets were not available to supply all vessels requiring them, the effective date was postponed until June 1, 1953.

* * * * *

ALASKA FISHING REGULATIONS FOR 1953 ISSUED: The commercial fishing regulations for the 1953 season in Alaska were issued March 13, by Secretary of the Interior Douglas McKay. Although a large number of changes have been made, only a few are significant; the remainder being either minor or of an editorial nature.

Changes include the closing of the Nushagak district of Bristol Bay because of the extremely poor condition of the red salmon runs there. To help alleviate any attendant hardship, the personal-use restrictions have been relaxed and the industry has been requested voluntarily to do everything possible to absorb the labor supply in adjoining districts of Bristol Bay where good runs are anticipated.

Because of a relatively poor escapement in the parent cycle, a small run of pink salmon is anticipated in Prince William Sound this year. Accordingly, a curtailed season extending from July 13 to August 5 has been adopted, along with the temporary closure of 17 trap sites and some curtailment of mobile gear by the industry. The runs will be watched with special care and additional closed time will be applied to field announcement, if such is necessary to secure an adequate escapement.

All indications point to good pink salmon runs in southeastern Alaska where the odd-year cycle has been rehabilitated and some relaxation in the seasonal restrictions is possible this year. The seasonal dates have been adjusted to conform with the time of occurrence of the runs in the various districts. An early season from June 24 to July 11 has been provided in the northern part of southeastern Alaska to allow harvesting of the early chum salmon runs. In addition, two more bays have been added to those open for fall fishing.



Copies of the printed regulations are available in Seattle, Juneau, and the various Alaskan district offices of the U. S. Fish and Wildlife Service.
NOTE: DETAILS ON AMENDMENTS FOR 1953 APPEARED IN THE FEDERAL REGISTER, MARCH 13, 1953, P. 1448.



Office of Defense Mobilization

CIVILIAN DISTRIBUTION CONTROL OF STEEL, COPPER, AND ALUMINUM NOT PLANNED AFTER JUNE 30: In response to questions regarding the use after June 30, 1953, of the Controlled Materials Plan in the distribution of steel, copper, and aluminum to the civilian economy, the Office of Defense Mobilization issued this statement on February 24:

"The Government does not intend to continue to control the distribution of steel, copper, and aluminum in the civilian economy after June 30, 1953, under the Controlled Materials Plan. Thereafter, if the necessary statutory authority is provided, materials controls will be used vigorously to assure completion of the military build-up but general distribution will be directed only of scarce and critical items essential to the national defense. Advance allotments of steel, copper, and aluminum under the Controlled Materials Plan for delivery after June 30, 1953 are being re-examined and all such allotments which do not meet the foregoing requirements will be cancelled within the next few weeks. Until cancelled, all allotments continue in full force and effect."



U. S. Tariff Commission

REPORT ON TUNA INDUSTRY: The U. S. Tariff Commission on March 23 issued a report (Tuna Fish--Report on Investigation Conducted Pursuant to a Resolution by the Committee on Finance of the United States Senate dated June 26, 1952) on the domestic tuna industry. The Senate resolution which called for the study was the outgrowth of defeat in the Senate of H. R. 5693, 82nd Congress, which provided for a temporary duty of 3 cents per pound on fresh or frozen tuna pending studies by the Tariff Commission and the Department of the Interior. H. R. 5693 had already been passed by the House of Representatives (October 15, 1951) and had been reported favorably by the Senate Finance Committee.

In transmitting the resolution to the Tariff Commission, Chairman Walter F. George of the Senate Committee on Finance stated that "...action of the Senate should probably be delayed until a thorough study has been made... (and)...that an investigation by ... (the Tariff Commission) ... would be of great help should any future action be considered." The resolution directed the Commission to set forth the facts relative to the production, trade, and consumption of tuna in the United States, and to take into account all relevant factors, including the interests of consumers, processors, and producers. The principal objective of the resolution was to obtain such factual information as would "assist the Congress in determining what change, if any, shall be made in the tariff status of fresh or frozen tuna."

Although the resolution of the Senate Committee on Finance did not request such an investigation by the Secretary of the Interior, six Senators representing the Pacific Coast States addressed a joint communication to the Secretary of the Interior asking him to make the investigation that was proposed in H. R. 5693. In response

to that request, the U. S. Fish and Wildlife Service also made an investigation, but members of the staffs of the Fish and Wildlife Service and of the Tariff Commission have consulted with each other with a view to minimizing duplication of effort.

With reference to the conclusions of the report, Chairman Brossard of the Tariff Commission made the following statement: "I do not approve these 'Conclusions' as they have been revised by the majority of the Commission. This whole tuna report must be submitted to the Senate Committee on Finance by March 20, 1953, which leaves me no time to prepare an adequate dissenting report, but only time to make this statement disclaiming responsibility for this section of the report as it now reads.

"I suggest to those persons interested in the differences in the opinions of the members of the Commission on the question of whether imports are injuring the domestic tuna industry that they read the Tariff Commission's report of November 1952 on Bonito Canned in Oil, and Tuna and Bonito, Canned not in Oil, made under the escape clause provisions of the Trade Agreements Extension Act of 1951."

Some of the leading statements contained in the conclusions follow:

"1. The difficulties confronting the domestic tuna fisheries and the domestic tuna canneries in recent years have been similar to those confronting many other industries that have been obliged to make postwar adjustments to the resumption or expansion of competition from abroad....

"2. ...On the basis of financial returns covering operations of five tuna canneries (which accounted for over one-fifth of total United States production in 1951-52), for periods ranging from 4 to 8 months of the calendar year 1952, it appears that sales of tuna (including those of tunalike fishes), as well as of other fish packed by tuna canners, will be greater in the fiscal year 1952-53 than they were in 1951-52, and that the profit experience of the tuna packers will be more favorable in 1952-53 than in 1951-52.

"3. ...domestically caught fish in all postwar years have accounted for two-thirds or more of the total quantity of tuna and tunalike fishes consumed in canned form in the United States. Of the total apparent consumption of tuna and tunalike fishes in all forms in 1952, the domestic catch supplied 340 million pounds (67 percent), imports of fresh or frozen fish 69 million pounds (13 percent), and imports of canned fish (in terms of round weight equivalent) 101 million pounds (20 percent). Some considerable part of the last-mentioned class of imports consists of tuna and bonito in brine, which are lower-priced items of which there is no corresponding domestic production.

"4. The domestic tuna-fishing interests have generally been more concerned with the imports of fresh or frozen tuna,¹ all of which enter free of duty, than with the imports of the canned tuna and tunalike fishes, all of which are dutiable. Imports of fresh and frozen tunalike fishes, most of which are dutiable at 1 cent per pound, have been insignificant and therefore have attracted little attention....

¹VIRTUALLY ALL SUCH IMPORTS ARE FROZEN.

"The extent to which the domestic tuna fisheries are exposed to foreign competition is actually governed by imports of both the raw and canned fish. The particular forms in which the imports enter the United States are largely influenced by the comparative incidence of the applicable rates of duty, some of which have been changed recently. The existing tariff structure appears to be most restrictive of imports of tuna canned in oil and least restrictive of imports of fresh or frozen tuna and of tuna and bonito canned in brine.

"The share of the total apparent consumption of all tuna and tunalike fishes in the United States which has been supplied by the domestic tuna fishery ranged between 82 percent and 87 percent in most years during the decade preceding World War II but fell to a low of 66 percent in 1933. The ratio rose to as high as 99 percent during the war period but declined thereafter, reaching a postwar low of 67 percent in 1952. The absolute quantity supplied by the domestic tuna fishery in that year was higher than in any preceding year before 1949, and was almost 80 percent higher than in 1939, a year in which the domestic fishery supplied 87 percent of the domestic consumption.

"5. Commercial fishing for tuna and tunalike fishes involves somewhat greater entrepreneurial risks than most other domestic enterprises. In good seasons, tuna fisheries receive high returns and in poor seasons they may sustain losses. Most domestic tuna fishermen participate in fishing ventures as entrepreneurs; they do not work for wages. Their income, which is usually a share of the net realization from the sale of fish, consequently varies considerably from year to year. Returns to boat owners vary even more, since they assume greater financial risks than do crew members.

"The large amounts of capital invested in the domestic tuna fishery and the general reluctance of tuna fishermen to change occupations tends to encourage fishing operations even when a given season's prospective earnings will not be high. Vessel owners will operate at a loss over a considerable period rather than sustain the even greater loss that would result from tying up their vessels and losing their crews....

"6. Whether it would be desirable as a matter of public policy to impose restrictions or additional restrictions on imports of tuna and tunalike fishes in the fresh, frozen or canned forms, is not a matter on which the Commission undertakes to pass. In considering this question, however, the Congress may wish to take into account, among other things, the following facts with regard to the manner in which such restrictions would operate and their possible effects upon the domestic tuna fishery.

"A sharp curtailment of imports of tuna and tunalike products, whether through tariffs or quotas, would probably benefit in the immediate future the domestic tuna fishery but might also, by encouraging the expansion of the domestic fleet, contribute to a later recurrence of essentially the same combination of circumstances that brought such distress to the domestic tuna fishery in 1951.

"There are no means whereby the Commission can determine, even approximately, what increase in domestic prices for fresh tuna would result from the imposition of a duty of any given height on imports of the raw fish (in conjunction with the aforementioned compensatory tariff adjustments on the canned fish products). Under present conditions, Peru and Japan, which are United States' two principal foreign suppliers, might well absorb some part of a United States duty on fresh or frozen tuna (together with the compensatory portion of the duties on the canned fish products) in order to maintain their tuna fishing and tuna canning operations;^{2/} these provide employment for their nationals, earnings for their industries, revenue for their governments and dollar exchange for their economies. Both countries are gradually increasing their exports of tuna and tunalike products to other markets, but at present they still rely principally on the United States market. Most of the tuna and tunalike products which those countries export to the United States are of the species or qualities processed primarily for the United States market and would not be produced to supply their respective home markets.

"It follows from what has been said that any desired limitation on imports of fresh or frozen tuna by the United States could probably be accomplished much more certainly under present conditions by means of quotas than by duties. The application of quotas, however, would impose difficult problems. Quotas on raw fish would probably have to be apportioned among the different foreign suppliers and might also have to be allocated among the various domestic canners. Limitation of imports of the raw fish by quota would probably necessitate the particularly difficult task of formulating the appropriate compensatory duties or quotas to apply to the imports of the canned products processed from the aforementioned fishes.

"7. The domestic tuna canning interests have been concerned about the tariff treatment applicable to imports of tuna and tunalike fishes in all their forms. The measure of tariff protection they receive depends primarily on the spreads between the duties applicable to the raw fish and the various rates applicable to the different packs of the canned fish. Some packers have been fearful of the possibility ^{2/}THE ABILITY OF JAPAN TO ABSORB AT LEAST SOME PART OF A UNITED STATES DUTY ON FROZEN TUNA, AS WELL AS AN INCREASED DUTY ON TUNA IN BRINE, IS INDICATED BY JAPAN'S PRESENT NEED TO IMPOSE RESTRICTIONS ON THE VOLUME AND MINIMUM PRICES OF EXPORTS OF THESE PRODUCTS TO THE UNITED STATES. PERU'S CORRESPONDING ABILITY IS INDICATED BY THE EXISTENCE OF A PERUVIAN TAX ON EXPORTS OF FROZEN AND CANNED TUNA AND TUNALIKE FISHES.

that a duty would be imposed on fresh or frozen tuna without any compensatory adjustment in rates applicable to the canned products. Such action would have a damaging effect on the domestic tuna packers, particularly those that rely largely on foreign sources of supply for raw fish. Even if no tariff changes were made for the benefit of the tuna packers, they would quite properly expect appropriate compensatory adjustments in the tariff treatment applicable to certain canned tuna and tunalike fishes (notably tuna in brine) to accompany the imposition of a duty or quota on fresh or frozen tuna for the benefit of the domestic tuna fishery.

"The reversion of the United States duty on tuna in oil to 45 percent ad valorem on January 1, 1951 operated primarily to lower the aggregate imports of the canned products and to increase the importation of the raw fish. The same tariff action, however, did cause importers to shift from tuna in oil to canned items dutiable at much lower duties, primarily tuna in brine, which is dutiable at 12½ percent ad valorem. A substantial part of the increased sales of tuna and bonito in brine, of which there is no corresponding domestic pack, did not displace equivalent quantities of tuna and tunalike fishes prepared in oil, foreign or domestic. To a considerable degree these imports of lower-priced tuna and tunalike products have created their own market. Restriction of imports of those packed in brine would operate to increase consumption of domestically-packed tuna and tunalike products canned in oil, but not to the extent that the imports of the products canned in brine would thereby be curtailed.

"Although the share of the total domestic consumption of canned tuna and tunalike fishes which has been supplied by imports has risen sharply in postwar years, domestic output of such canned products reached a record high in 1952, amounting to 179 million pounds. About 17 percent of that total was processed from imported raw fish, but the quantity processed from domestic fish was higher in 1952 than in any earlier year.

"8. The Tariff Commission only recently had occasion to determine whether the domestic industry that packs tuna and tunalike fishes was being seriously injured, within the meaning of the escape-clause provisions of the Trade Agreement Extension Act of 1951, by increased imports of certain canned products processed from such fish. A number of tuna-fishing and tuna-canning interests filed an application with the Tariff Commission on November 28, 1951, requesting it to conduct an escape-clause investigation covering tuna in brine and bonito in oil and in brine. The application did not include fresh or frozen tuna or tuna canned in oil, since these products were not the subject of any trade agreement tariff concessions. In that investigation, the Tariff Commission found, with Commissioners Brossard and Gregg dissenting,^{2/} that the items covered were not being imported in such increased quantities, either actual or relative, as to cause or threaten-

^{2/}THE BASIS OF THE DISSENT BY COMMISSIONERS BROSSARD AND GREGG WAS NOT THAT IMPORTS OF THE CANNED ITEMS WERE CAUSING SERIOUS INJURY TO THE DOMESTIC TUNA PACKERS AS DISTINGUISHED FROM THE DOMESTIC TUNA FISHERY, BUT RATHER THAT SUCH IMPORTS WERE CAUSING INJURY TO THE WHOLE DOMESTIC TUNA INDUSTRY, WHICH IN THEIR VIEW ENBRACED BOTH THE TUNA-FISHING AND TUNA-PACKING INTERESTS. THE MAJORITY OF THE COMMISSION CONSIDERED ONLY WHETHER IMPORTS OF THE ABOVE-DESCRIBED CANNED PRODUCTS WERE CAUSING OR THREATENING SERIOUS INJURY TO THE DOMESTIC TUNA PACKERS. THE MAJORITY FEEL THAT FURTHER RESTRICTION OF IMPORTS OF THE CANNED PRODUCTS, WHICH WERE THE SUBJECT OF THE ESCAPE-CLAUSE INVESTIGATION, WOULD OPERATE PRINCIPALLY TO INCREASE IMPORTS OF FRESH AND FROZEN FISH AND THEREFORE COULD NOT BE OF BENEFIT TO THE DOMESTIC TUNA FISHERY.

en serious injury to the domestic industry producing like or directly competitive products. The only commercially important canned tuna product not covered by that investigation was tuna packed in oil, imports of which had already declined sharply following restoration of the 15-percent duty on January 1, 1951. Therefore, even if tuna in oil had been the subject of a trade-agreement concession and had been included with the other items in the escape-clause action, the Commission's finding would presumably have been no different from what it was.

"Since the Tariff Commission made the aforementioned escape-clause finding, the financial position of the domestic industry which packs tuna and tuna-like fishes appears to have improved. Presumably, therefore, less basis exists now than existed when the escape clause investigation was made for increasing duties or applying quotas on any imports of canned tuna and tunalike fishes in order to prevent serious injury to the domestic industry which packs such fish. Even if no tariff or quota action should be taken for the benefit of domestic tuna packers, however, it might be necessary to apply increased duties or quotas on at least some canned tuna and tunalike fishes if duties or quotas should be placed on imports of fresh or frozen tuna for the benefit of the domestic tuna fishery. The scope and nature of the compensatory adjustments on the canned items would depend on the height of the duties, or the size of the quotas, on the fresh and frozen fish.

"9. To the extent that imports of fresh or frozen tuna would be restricted by either tariffs or quotas, the domestic canneries that rely on foreign sources for all or part of their supply of raw fish might be placed at a competitive disadvantage in comparison with those that obtain most or all of their supplies from domestic fisheries. The domestic canneries most dependent on foreign sources of supply

are located in the Pacific Northwest, the Atlantic Coast States, and Hawaii.

"Overall restriction of imports of the raw fish would also operate to reduce the supply of albacore, available to domestic canneries. The domestic catch of albacore, which varies widely from year to year, is not nearly large enough to meet requirements of domestic canneries for producing their premium packs of white meat tuna.

"To the extent that the imposition of a duty or quota on fresh or frozen tuna would result in higher costs to domestic canneries, the wholesale prices of canned fish would advance and the retail prices would advance disproportionately more. The cost of raw fish currently averages over 60 percent of the factory cost of producing canned tuna in the United States.

"10. The tariff treatment applicable to fresh or frozen bonito and yellowtail, tuna canned in brine, and bonito and yellowtail canned in oil or brine are now the subject of tariff commitments under trade agreements with various countries; but imports of fresh or frozen tuna and tuna in oil are not the subject of any such commitments. Any changes in the tariff treatment of imports now subject to these commitments would therefore require modification of the agreements with one or more of the following countries: Iceland and the contracting parties of GATT, of which Cuba, Peru, Canada, and Chile would probably be the countries principally concerned.

"Although the United States has no specific obligations to Japan with respect to the tariff treatment applicable to United States imports of tuna and tunalike products, Japan has an important interest in that matter. The export of frozen and canned tuna and tunalike fishes to the United States by foreign countries, particularly Japan and Peru, provides employment for their nationals, some revenue for their governments, and a supply of needed dollar exchange."



Eighty-Third Congress (First Session)

MARCH 1953

Listed below are public bills and resolutions introduced and referred to committees or passed by the Eighty-Third Congress (First Session) and signed by the President that directly or indirectly affect the fisheries and allied industries. Public bills and resolutions are shown in this section only when introduced and, if passed, when signed by the President; but also shown are the more pertinent reports, hearings, or chamber actions on some of the bills shown in this section from month to month.

BILLS AND RESOLUTIONS INTRODUCED:

Distribution of Fishery Products: H. R. 4303 (Lane) - A bill to further encourage the distribution of fishery products, and for other purposes; to the Committee on Merchant Marine and Fisheries. This bill provides that from funds available to the Secretary of Agriculture to carry out the provisions of section 32 of the Act of August 24, 1935 (49 Stat. 774), as amended, \$3,000,000 a year shall be transferred to the Secretary of the Interior to be used to encourage domestic consumption of surplus fishery products "by acquiring them and providing for

their distribution through Federal, State, and private relief channels." From the total funds, the sum of \$750,000 "shall be used to promote the free flow of domestically-produced fishery products in commerce by conducting a fishery educational service and fishery technological and related research programs;" and \$250,000 to develop and increase markets for domestic fishery products.

Export and Import Controls: H. R. 2949 (Gross) - To amend the Export Control Act of 1949, so as to provide for import controls and modify the provisions relating to export controls for the protec-

tion of American agriculture, labor, and industry, and for other purposes; to the Committee on Banking and Currency.

Fishermen's Old-age and Survivors Insurance Coverage Extension: H. R. 3688 (Bolton) - A bill to extend the old-age and survivors insurance system to certain service performed by fishermen, including service performed by them aboard vessels of 10 tons or less; to the Committee on Ways and Means.

Hawaii Statehood: H. R. 3575 (Saylor) - Same as those previously introduced.

Imports from Guam: H. R. 3798 (Patterson) - To amend section 27 of the Organic Act of Guam (Public Law 630, Eighty-first Congress) to provide that articles imported into the United States from Guam and containing foreign materials to the value of more than 20 per centum of their total value, shall be dutiable; and for other purposes; to the Committee on Interior and Insular Affairs.

International Food Reserve: S. J. Res. 56 (Murray and 23 others) - Joint resolution to provide for the creation of an International Food Reserve; to the Committee on Foreign Relations.

Labeling of Foreign-Produced Trout Packages: H. R. 4201 (Budge) - A bill relating to the labeling of packages containing foreign-produced trout sold in the United States, and requiring certain information to appear on the menus of public eating places serving such trout; to the Committee on Interstate and Foreign Commerce. Provisions same as S. 1114 reported in Commercial Fisheries Review, March 1953, Page 72.

Natural Resources Policy: S. 1412 (McCarran) - A bill to establish a national natural resources policy; to create a Natural Resources Council; to provide for a natural resources inventory; and for other purposes; to the Committee on Interior and Insular Affairs. Fishery or aquatic resources not included.

Striped Bass Protection: H. R. 3720 (Wolverton) - A bill to protect striped bass; to the Committee on Merchant Marine and Fisheries. This bill makes it unlawful for anyone to catch striped bass by the use of a net, seine, or any other contrivance, except a hook and line, within U. S. territorial waters.

Titles of States to Lands and Resources Beneath Navigable Waters: H. R. 4198 (Graham) - A bill to confirm and establish the titles of the States to lands beneath navigable waters within State boundaries and to the natural resources within such lands and waters, and to provide for the use and control of said lands and resources and the resources of the outer Continental Shelf; to the Committee on the Judiciary.

Titles of States to Lands and Resources Beneath Navigable Waters: S. 1252 (Anderson for himself and 17 other Senators) - A bill relating to the rights of the several States in tidelands and in lands beneath navigable inland waters, and to the recognition of equities in submerged lands of the Continental Shelf adjacent to the shores of the United States, and for other purposes; to the Committee on Interior and Insular Affairs.

Trade Agreements Extension Act of 1953: H. R. 4294 (Simpson) - A bill to extend the authority

of the President to enter into trade agreements under section 350 of the Tariff Act of 1930, as amended, and for other purposes.

BILLS REPORTED:

Titles of States to Lands and Resources Beneath Navigable Waters: Reported to the House was H. R. 4198, to confirm and establish the titles of the States to lands beneath navigable waters within State boundaries and to the natural resources within such lands and waters, and to provide for the use and control of said land and resources and the resources of the outer Continental Shelf; filed March 27 (H. Rept. 215).

Titles of States to Lands and Resources Beneath Navigable Waters: Reported to the Senate was S. J. Res. 13, to confirm and establish the titles of the States to lands beneath navigable waters within State boundaries and to the natural resources within such lands and waters, and to provide for the use and control of said lands and resources, with amendments (S. Rept. 132).

BILLS PASSED:

Hawaii Statehood: By a vote 274 to 138 the House of Representatives passed H. R. 3575, to enable the people of Hawaii to form a constitution and State government and to be admitted into the Union on an equal footing with the original States. The bill was reported to the House by the Committee on Interior and Insular Affairs (H. Rept. 109). The Committee on Rules granted an open rule for general debate (H. Rept. 124).

CONGRESSIONAL REPORTS:

Committee reports on bills reported in this section of interest to the fishery and allied industries available only from the committee submitting the report.

Enabling the People of Hawaii to Form a Constitution and State Government and to be Admitted into the Union on an Equal Footing with the original States: House Report No. 109 (March 3, 1953), 83d Congress, 1st Session), 73 p., printed, to accompany H. R. 3575. The Committee on Interior and Insular Affairs reported favorably on the bill with amendments, and recommended passage.

Submerged Lands Act: House Report No. 215 (March 27, 1953, 83d Congress, 1st Session), 124 p., printed. This is a report from the Committee on the Judiciary to accompany H. R. 4198, to confirm and establish the titles of the states to lands beneath navigable waters within state boundaries and to the natural resources within such lands and waters, and to provide for the use and control of said lands and resources and the resources of the outer continental shelf. The Committee recommended passage of the bill without amendment. The bill defines "lands beneath navigable waters" to mean the lands which were within State boundaries and covered by nontidal waters which were navigable under Federal law at the time the State entered the Union, or acquired sovereignty over them later up to ordinary high water mark as modified in the past or future by accretion, erosion, and reliction. "Natural resources" is described to include without limiting the generality thereof, oil, gas, all other minerals, fish, shrimp, oysters, clams, crabs, lobsters, sponges, kelp, and other marine animal and plant life. The "continental shelf" is also defined. The report discusses

the need for legislation, the history of the bill, the purpose of legislation, and an analysis of the bill. An appendix contains House Report No. 695, to H. R. 4484, 82d Congress, 1st Session; House Report No. 1778 to H. R. 5992, 80th Congress, 1st Session; list of proponents during hearings on S. 1988, H. R. 5992, and related measures; approximate areas of submerged lands within State boundaries; minority views to H. R. 5992; opinions of the Supreme Court in various pertinent cases; minority report to H. R. 4484; Senate Document No. 139, 82d Congress, 2d Session, veto message—title to submerged lands (S. J. Res. 20); Executive Order 10426, issued January 16, 1953, setting aside submerged lands, additional views, and additional separate statement of views on H. R. 4198.

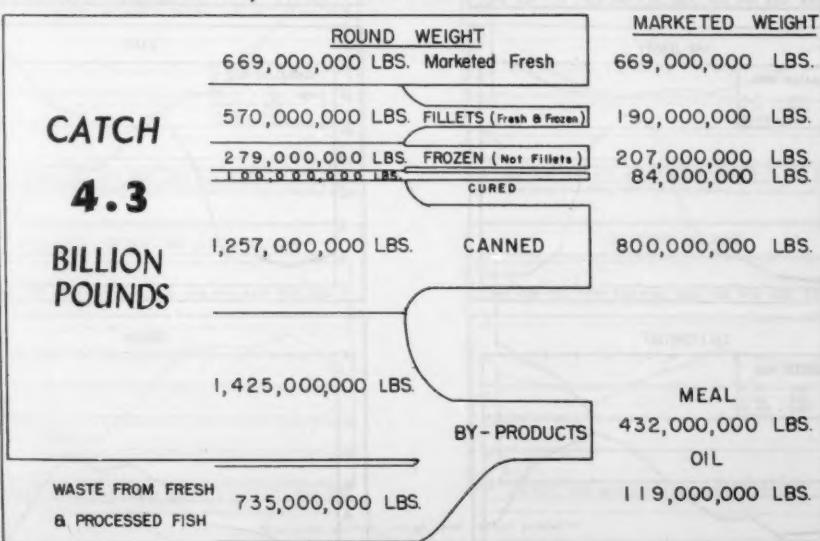
Submerged Lands Act, Senate Report No. 133, Part 1, (March 27, 1953, 83d Congress, 1st Session), 81 p., Printed. This is a report from the Committee on Interior and Insular Affairs to accompany S. J. Res. 13, a joint resolution to confirm and establish the titles of the states to lands beneath navigable waters within state boundaries and to the natural resources within such lands and waters, to provide for the use and control of said lands and resources, and to confirm the jurisdiction and control of the United States over the natural resources of the seabed of the continental shelf seaward of state boundaries. Committee recommended passage with an amendment in the form of a clean bill. The only change of substance from the original bill is in section 9, in which the jurisdiction and control of the Federal Government over the natural resources of the seabed of the continental shelf seaward of historic state

boundaries is confirmed. The report contains the clean bill, a discussion of the purpose of the bill and legislation for the continental shelf, analysis of the bill, Committee amendments, and the history of the legislation. The Committee points out that "the majority is fully aware that in proposing legislation applying only to submerged lands inside State boundaries, there remains a large and important area requiring congressional action, namely, the Continental Shelf seaward of state boundaries." The bill as amended deals "with this vast area only to the extent that it gives statutory confirmation to the jurisdiction and control of the United States over the resources of the seabed and subsoil of the continental shelf which was asserted in 1945 by the Presidential proclamation. It does not attempt to provide for the administration and development of the area and the mechanics of control." An appendix contains the Proclamation by the President of the United States of Sept. 28, 1945, stating the policy of the United States with respect to the natural resources of the subsoil and seabed of the continental shelf; Executive Order 9633, Sept. 28, 1945, reserving and placing certain resources of the continental shelf under the control and jurisdiction of the Secretary of the Interior; text of Supreme Court decisions in various pertinent cases; Senate Report No. 1592, 80th Congress, 2d Session; and Memorandum Brief by National Association of Attorneys General.

Submerged Lands Act (America's Stake in Offshore Oil), Senate Report No. 133, Part 2 (April 1, 1953), 138 p., Printed. Contains the minority views.



FLOW CHART of the COMMERCIAL FISHERIES - 1952



FISHERY INDICATORS

CHART I - FISHERY LANDINGS for SELECTED STATES
In Millions of Pounds

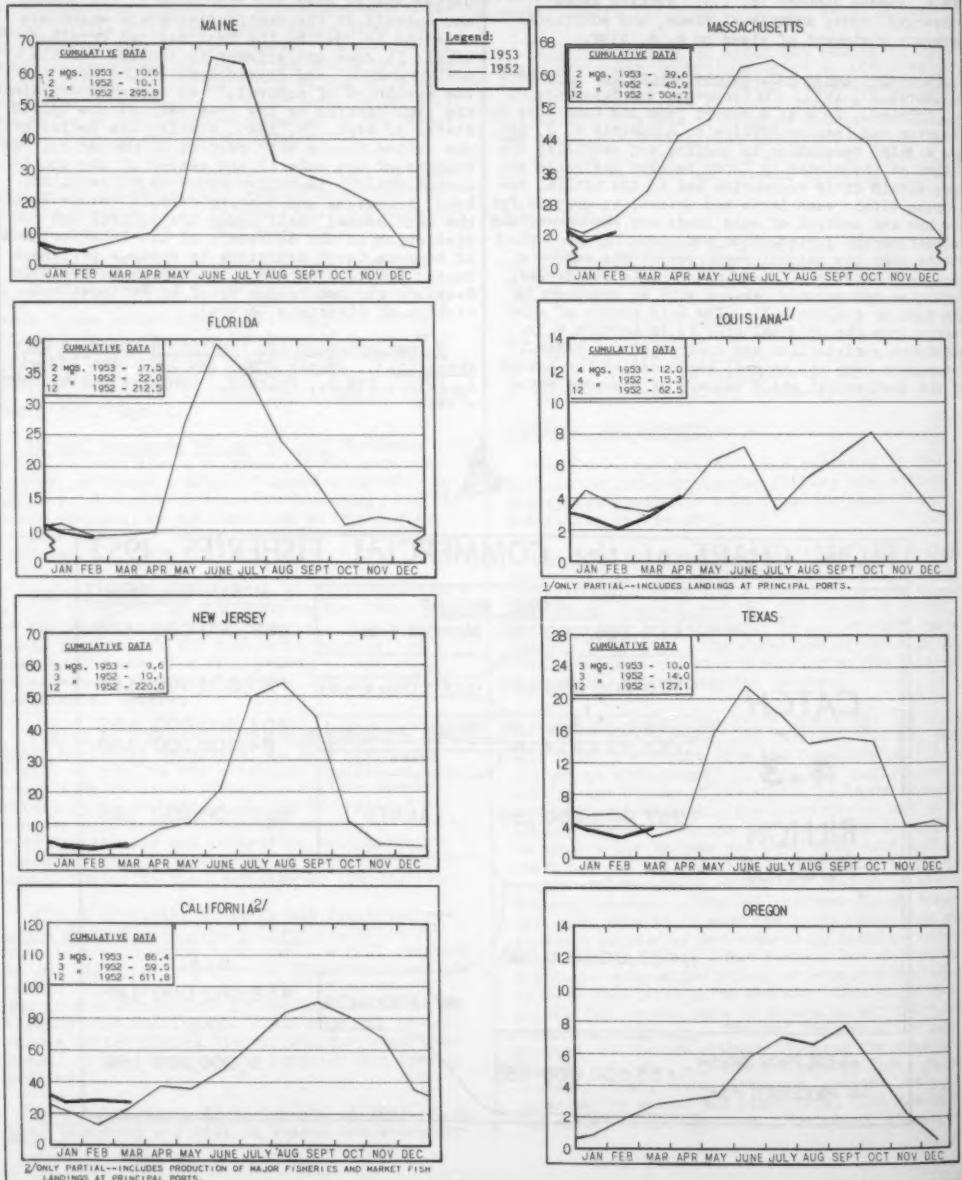
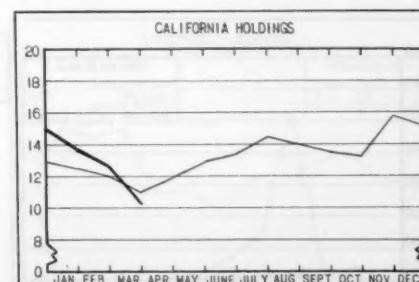
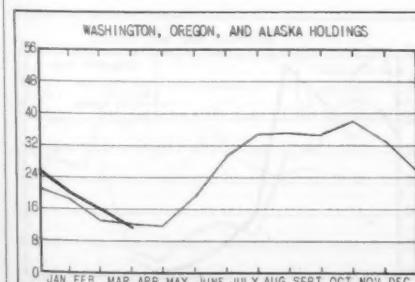
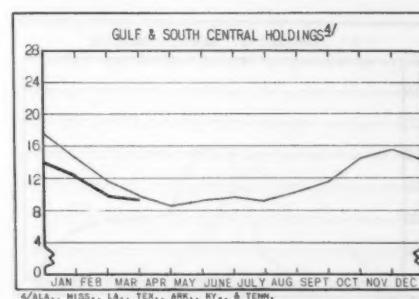
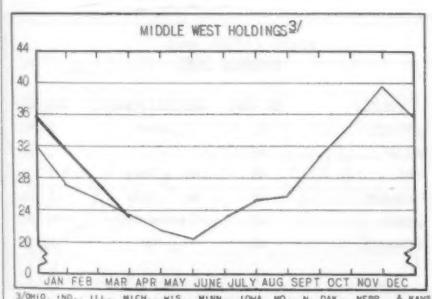
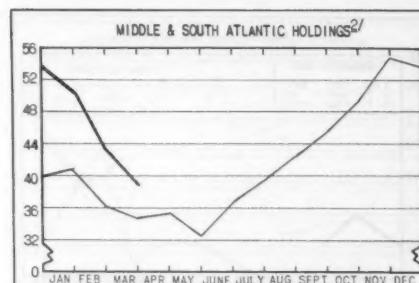
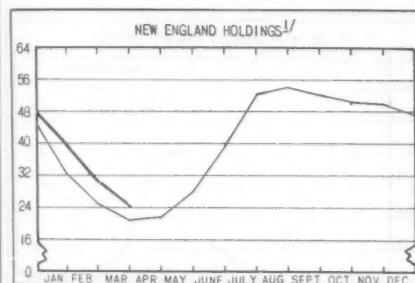
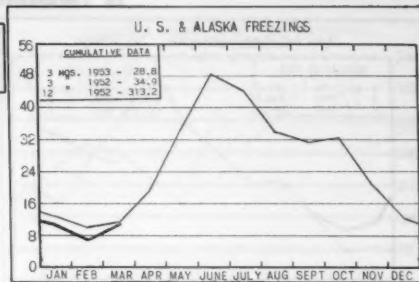
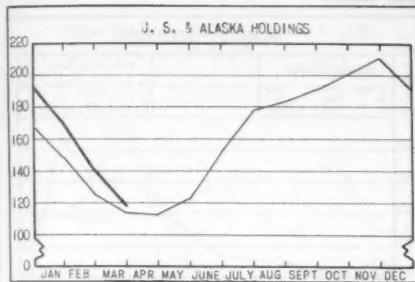


CHART 2 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds



*Excludes salted, cured, and smoked products.

CHART 3 - CANNED PACKS of SELECTED FISHERY PRODUCTS

In Thousands of Standard Cases

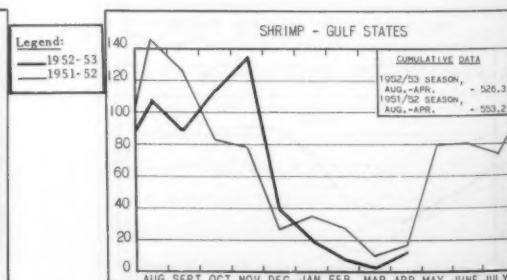
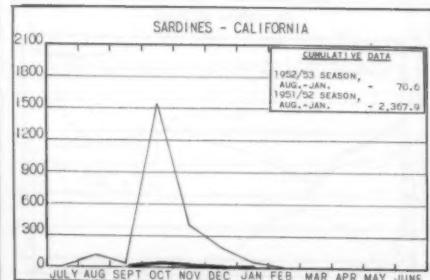
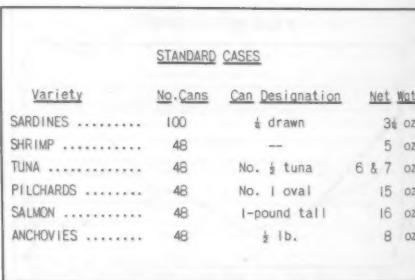
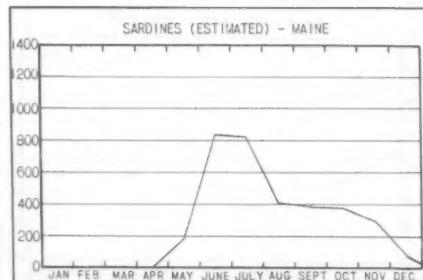
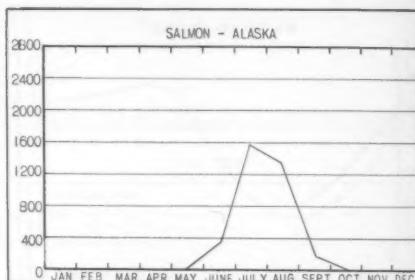
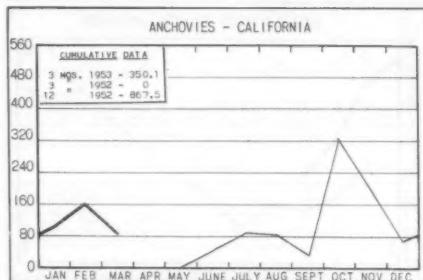
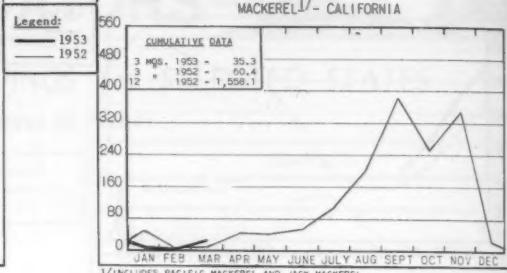
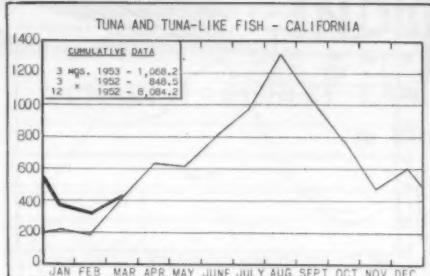
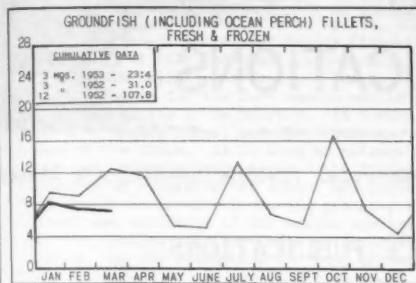
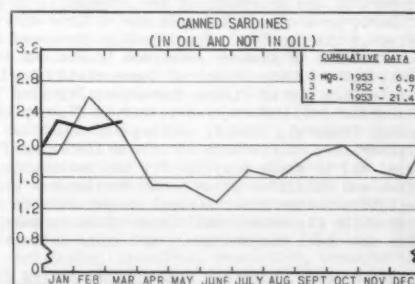
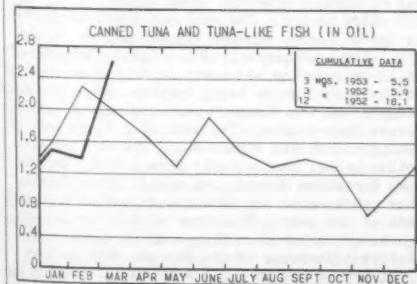
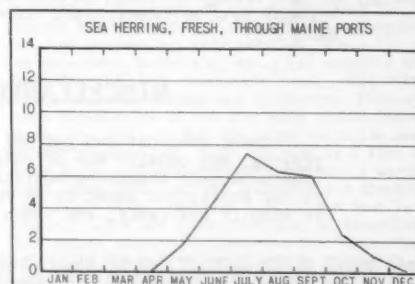
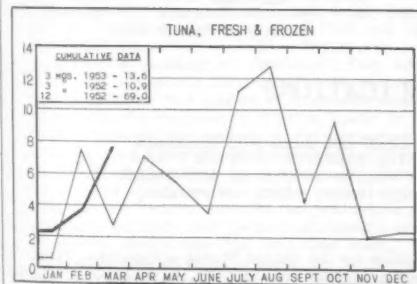
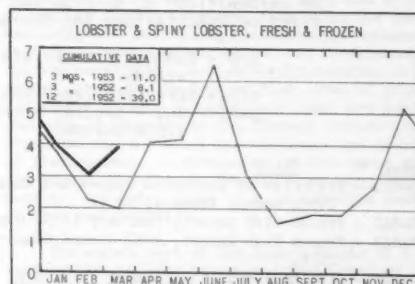
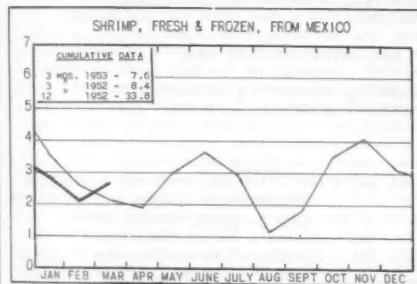
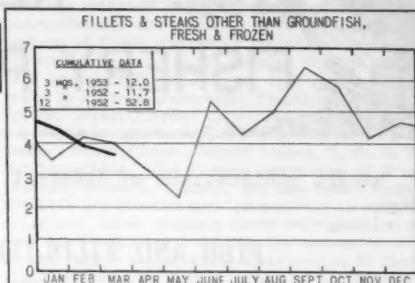


CHART 4 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds



Legend:
— 1953
- - 1952





Recent publications of interest to the commercial fishing industry are listed below.

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C., TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.
 SEP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
 SSR.-FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number	Title	Number	Title
CFS-841	Fisheries of the United States and Alaska, 1950, Annual Summary, 12 p.	Sep. No. 343	Shellfish Explorations in Certain Southeastern Alaskan Waters by the John N. Cobb, Spring 1952.
CFS-842	Frozen Fish Report, February 1953, 8 p.	Sep. No. 344	Alaska's Shrimp Industry.
CFS-843	Frozen Fish Report, 1952 Annual Summary, 13 p.	Sep. No. 345	Freezing-Fish-at-Sea--New England: Part 6 - Changes and Additions to Experimental Equipment on the Trawler Delaware.
CFS-849	Fish Meal and Oil, January 1953, 2 p.	Sep. No. 346	Technical Note No. 25--Amino-Acid Content of Salmon Roe.
CFS-853	Frozen Fish Report, March 1953, 8 p.		
SSR-Fish. No. 94	Passage of Shad at the Bonneville Fishways, by G. B. Talbot, 33 p., illus., March 1953		

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE AGENCIES OR PUBLISHERS MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

Annual Report of the Director Fish and Wildlife Service to the Secretary of the Interior, Fiscal Year Ended June 30, 1952 (Reprinted from the Annual Report of the Secretary of the Interior), 39 p., illus., printed. Summarizes the various activities of the Service. Specifically discussed are utilization of fishery resources (describes the activities of the Branch of Commercial Fisheries); administration of Alaska fisheries; Pribilof Islands fur-seal industry; research in fishery biology (coastal, inland, marine, and shellfish fisheries); maintenance of inland fisheries; Federal aid to state projects for the restoration of fish and wildlife; river basin development and wildlife needs; international cooperation in conservation (international conservation agreements and technical cooperation); and other activities.

Offshore Grounds Important to the United States Haddock Fishery, by Howard A. Schuck, Research Report 32, 23 p., illus., printed, 15 cents, 1952. Presents information concerning the areas fished for

haddock by the United States otter-trawl fleet over a 12-year period, 1938-49. A series of charts is included. One chart shows the relative intensity of fishing over the areas fished for the entire study period. The most important grounds for the United States haddock fishery are on Georges Bank. About 82 percent of the fishing effort over the 12-year period was spent on this bank, the most heavily fished areas being Northern Edge, Southeast Georges, and the "Corner" between South Channel and Georges Bank proper. The remaining 18 percent of fishing effort was spread among the various Nova Scotian banks, particularly Browns Bank, Emerald Bank, Horseshoe Ground, and around Sable Island. Other charts show the relative intensities in each month of the year. The areas of most intense fishing varied in location from month to month. The relative importance of the Georges Bank grounds varied from a low in April when 63.5 percent of the total fishing effort was spent there, to a high in October when 94.2 percent of the effort was spent on these grounds.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

(California) Common Marine Bivalves of California, by John E. Fitch, Fish Bulletin No. 90, 106 p., illus., printed. Bureau of Marine Fisheries, Department of Fish and Game, San Francisco, Calif., 1953. This bulletin is designed to provide authorized names for the more common edible marine bivalve mollusks of California. It covers 60 of the more common clams, mussels, scallops, and oysters of the State. It is also an attempt to assess the economic importance to the State of these bivalves by recording the extent and location of the available bivalve-producing grounds, and the number and abundance of the edible species. Also, by contributing to a knowledge of their life histories, lay the foundation for such protective legislation as may in the future be found necessary. It proposes to make available to the amateur clam digger and amateur naturalist a means of identifying the more common and important bivalves. It is meant as a guide for any person interested in bivalve mollusks regardless of his technical knowledge and background. This bulletin includes sections on the names of bivalves; habits and habitats; anatomy; locomotion; feeding and nutrition; growth; reproduction; ecological relationships; economic importance; clamping methods and gear; and preparation and use of clams as food. It also includes a glossary of technical terms; a key to some marine bivalves of California; a list of common and scientific names; and descriptions and illustrations.

(California) The Commercial Fish Catch of California For the Year 1951, with an Evaluation of the Existing Anchovy Case Pack Requirements, Fish Bulletin No. 89, 68 p., illus., printed. Bureau of Marine Fisheries, Department of Fish and Game, San Francisco, Calif., 1953. The report contains data on the landings of commercial fish and shellfish, and shipments into California during 1951; information on the number of licensed commercial fishermen and registered fishing boats in the State; data on the number of fish taken by anglers fishing from licensed party boats; and the recorded catch of live bait in southern California made by vessels supplying the party boat fleet. In addition, the report contains an evaluation of the existing anchovy case-pack requirements prescribed in the California Fish and Game code. A list of common and scientific names of California fishes, crustaceans, and mollusks is included.

Fisheries Year-Book and Directory 1952-53 (International Reference Book and Directory of the Fishing and Fish Processing Industries), edited by Harry F. Tysser, 400 p., printed, illus. British-Continental Trade Press Ltd., London, England. (Available in the United States from John D. Griffiths, American Sales Director, British-Continental Trade Press Ltd., 3606 Parkwood Drive, Greensboro, N. C.) A book with a wide scope, and a valuable reference on the commercial aspects of the fisheries. Touches upon all phases of the fisheries of the world—catch, processing, vessels, gear, research, edible products and byproducts, and recent developments and techniques in various countries. Divided into two sections, the first

part has articles on various phases of the fishery industries and the second part is an extensive directory of firms engaged in the various branches of those industries. The chapter "Around the World" is a survey of the fisheries, fish processing, and trade in Algeria, Australia, France, Greenland, Greece, Israel, India, Japan, Malaya, Morocco, Mexico, Netherlands, Norway, Persia, Portugal, Spain, Sweden, South Africa, United States, U. S. S. R., and Yugoslavia. The fishery industries of Great Britain, Denmark, Iceland, and the German Federal Republic are treated more extensively in separate articles. Other chapters cover refrigeration progress in the fishing industry; the expansion of the smoked salmon trade; world distribution of food fish; and the 1951 annual report of the International Council for the Exploration of the Sea. Most of the statistics are for 1951. There are articles on English fishery research; fish oils; the use of measuring and controlling instruments; developments in fishing-vessel construction; and developments in canning techniques. A fish supply calendar is included, tabulated by type of fish, area of catch, and months of supply. Among the lists are trade journals of interest to the fishery industries; organizations and trade associations; and an index of fishing nets. A dictionary of fish names gives the scientific, French, German, Norwegian, Danish, Swedish, and Dutch names of a considerable number of fish and shellfish.

The second part of the book consists of a directory divided into industry classifications, with the names of firms grouped by countries. Included are: (1) exporters and curers, quick freezers, trawler owners; (2) importers and wholesalers; (3) fish canners and preservers; (4) machinery and equipment for fish processing, refrigeration, etc.; (5) packing machinery, materials, etc.; (6) supplies for fisheries; (7) fish byproducts (meal, oil, vitamins, etc.); (8) cold storage and transport. Although these directories do not list many United States firms, the listings for the other countries seem to be fairly extensive. Also included is a list of trade marks, descriptions of the products merchandised under them, and the producers and distributors using them. The last list in the book is a "Buyers' Guide and Classified List of Advertisers." This latest edition incorporates the "World Fisheries Year-Book," "North Atlantic Fisheries Year-Book," and the "Herring Exporters Manual."

Foreign Commerce Yearbook, 1950, 730 p., printed, \$2.25. Office of International Trade, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, Washington 25, D. C.) Contains basic statistics on foreign trade and related information concerning 82 countries, including condensed fisheries production data for a few of the countries. The data, in highly condensed form, covering 1950 were compiled from official publications of the various countries, supplemented by information from international agencies, the U. S. Foreign Service, and other U. S. Government sources. For each country, a brief description is given of its area and population, agriculture, fishing, forestry and mining, industrial production, transportation,

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and finance. Accompanying trade statistics show value and volume of trade with other nations and value and volume of imports and exports of the principal commodities traded with the United States and the rest of the world. The 1950 statistics indicate a recovery over the earlier post-war years in both production and trade by most of the nations. Figures are also given for 1947, 1948, and 1949 wherever available. The new yearbook continues a series which has been issued by the Department of Commerce annually since 1922, except for the period 1939-47, when the disruption of trade by the war and the subsequent unavailability of information on many areas caused a suspension.

General and Financial Stability of the Gulf Shrimp Industry (Research and Survey Report), by Frank A. M. Williams, 41 p., printed. George Engine Co., Harvey, Louisiana. Includes a brief historical summary of commercial shrimping and a description of the progress made in the trawl, boats, and other equipment used in the shrimp fishery. Discusses the changed conditions in the shrimp industry and the effect of these changes, including the increased available supply, expansion in marketing and distribution facilities, and prices and increased market stability. Present financing methods of shrimp-boat purchasers are described. A prediction of the shrimp industry's future is also included.

Illustrations of Japanese Fishing Boats, 1952, 327 p., printed in Japanese and English. Japanese Fisheries Agency, Tokyo, Japan, (Printed by Nippon Oyo Printing Co., Ltd., Tokyo, Japan.) This book presents detailed construction plans and performance data for 42 types of engine-propelled Japanese fishing boats. The tables include principal dimensions, capacity, light- and full-load conditions, and trial results. The many drawings for each vessel include general arrangement plans, midship section construction, lines and offset, hydrostatic and stability curves, fishing gear arrangement, insulation construction, engine-room arrangement, and piping arrangement. The book is divided into two sections, covering wooden and steel vessels. The introduction explains that this book was compiled as a reference for designers, shipowners, and members of the fishing industry. Unfortunately, some of the plans have been reduced to the point where fine lettering is blurred and indistinguishable. There is no text.

—H. R. Bullis

(Department of the Interior) 1952 Annual Report of the Secretary of the Interior (Fiscal Year Ended June 30, 1952), 506 p., printed, indexed, \$1.25. U. S. Department of the Interior, Washington, D. C.) (For sale by the Superintendent of Documents, Washington 25, D. C.) This publication contains the annual reports of the various agencies of the Department of the Interior, including the Fish and Wildlife Service and the Defense Fisheries Administration. Included under Fish and Wildlife Service are summaries of its various activities. Specifically discussed are utilization of fishery resources (describes the activities of the Branch of Commercial Fisheries); administra-

tion of Alaska fisheries; Fribolof Islands fur-seal industry; research in fishery biology (coastal, inland, marine, and shellfish fisheries); maintenance of inland fisheries; Federal aid to state projects for the restoration of fish and wildlife; river basin development and wildlife needs; international cooperation in conservation (international conservation agreements and technical cooperation); and other activities. Under the Defense Fisheries Administration section, a concise description of that agency and its functions is presented.

(International Commission for the Northwest Atlantic Fisheries) Second Annual Report for the Year 1951-52, 68 p., illus., printed. International Commission for the Northwest Atlantic Fisheries, St. Andrews, N. B., Canada, 1952. This is the second annual report of the Commission and includes an administrative report and financial statement for the fiscal year ending June 30, 1952; report of the second annual meeting; mesh regulation to increase the yield of the Georges Bank haddock fishery; and statistics of landings of groundfish by all countries fishing in the Convention area.

(International Tin Study Group) The Statistical Year Book, 1952 (Tin, Tinplate, Canning), 266 p., illus., printed, £2 (US\$5.60) or equivalent. International Tin Study Group, 7 Carel van Bylandlaan, The Hague, Holland, November 1952. This is the second Year Book on all aspects of the world tin industry prepared by the International Tin Study Group. In view of the present and potential importance of the canning industry as a user of tinplate and, therefore, of tin, particular attention has been given to the insertion of canning statistics, including production and trade. There are statistics on nearly all canned food products. Fish and shellfish products are listed as a group in quite a few of the tables.

(Maryland) Ninth Annual Report, 1952, Maryland Board of Natural Resources, Annapolis, Md., 196 p., illus., printed. This report covers the fiscal year July 1, 1951, through June 30, 1952, and is divided into the following parts: Part I—Introduction; Part II—Activities of the Board; Part III—Departmental Reports; and Part IV—Legislation and Budget. Part III contains the annual reports of the five component Departments of the Board, including the Department of Tidewater Fisheries, the Department of Game and Inland Fish, and the Department of Research and Education. The Department of Tidewater Fisheries report discusses oyster production, law enforcement, training field personnel, boat maintenance, leasing of oyster grounds, and the public relations and educational program. Included are these tables giving 1951 data unless otherwise indicated: oyster shells planted; seed oysters transplanted in 1950-51; blue-crab catch; shellfish licenses issued; Chesapeake Bay commercial fish landings (catch by species by gear); Atlantic Ocean commercial fish landings (catch by gear by species); total Maryland landings (catch and ex-vessel value by species); and fish net licenses issued. Also, a table is included showing a ten-year summary of Maryland's commercial fisheries. The Department of Game and Inland Fish report includes a

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WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES
ISSUING THEM.

discussion of the accomplishments in Maryland's inland fisheries; inland fishing conditions; cooperative inland fish investigations; federal aid in inland fish management; and future plans and recommendations. The Department of Research and Education report contains information on the hydrographic program; analysis of fish catch records and other investigations relating to oysters, finfish, and crabs. Part IV contains a summary of the conservation legislation enacted by the General Assembly of Maryland for the fiscal year covered by this report and all amendments to conservation laws made during the year. The Appendix contains the full text of the Maryland-Virginia Compact of 1785, including the amendments passed by the Maryland General Assembly in 1949.

"The Preservation of Fishing Nets, Trawl Twines and Fibre Ropes for Use in Sea Water," by W. R. G. Atkins and F. J. Warren, article, Journal of the Marine Biological Association of the United Kingdom, vol. XXI, no. 3, pp. 509-13, printed. Cambridge University Press, Bentley House, N. W. 1, London, 1953, 31s. 6d. net (US\$4.60). Describes a series of seawater absorption and durability tests made on sisal, manila, and coir rope that had been treated with Cuprinol and tar, and on cotton netting that had been treated with various copper and aluminum compounds. Treating the different ropes with Cuprinol and tar increased their wet weight only slightly. Less water was absorbed than without the preservative. Cotton netting treated with copper naphthenate preservatives lasted 9 months against 5½ months for untreated in clean seawater tests. Manila twine treated with Cuprinol lasted 16 months against almost 9 for the untreated.

—H. R. Bullis

Review of Kenya Fisheries, 1951, by Hugh Copley, 78 p., illus., printed. The Government Printer, Nairobi, Kenya. Reviews the Kenya fisheries for 1951, with special reference to the river fisheries, hatchery work, a fish-culture farm, and the marine fisheries. The report on the marine fisheries discusses production, prices, marketing and distribution, and types of gear. Includes a list of the common fishes caught off the Kenya coast (with their scientific, common, and Swahili names) and a list of the poisonous fishes. Also includes statistical data on the yield of trout by river and area for the period 1938-51, and fish trap results.

Western North Atlantic Bluefin Tuna Cooperative Research Program, Progress Report No. 4, 53-4, Annual Report for Year 1952, 4 p., processed. The Marine Laboratory, University of Miami, Coral Gables, Fla. Summarizes the 1952 activities of the Marine Laboratory staff in the investigations of the life history of the western North Atlantic bluefin tuna (*Thunnus thynnus*), to be continued during 1953. Such things as systematics, anatomy and physiology, distribution, migrations, breeding and development, behavior, and air and surface observations are covered. Biometric data indicate that there is no wholesale intermingling between bluefin tuna of the western North Atlantic and those of the eastern North Atlantic. New records extend the known range of the bluefin as far south as the north (Caribbean) coast of South America, including the entire Caribbean area, the Gulf of Mexico proper excepted. Observations and plankton collections confirmed that the western edge of the Bahama Banks is at least part of the breeding grounds of the bluefin during May and June. Limited work with underwater hydrophones revealed no evidence of sounds being emitted from the schools of tuna. Data were collected from the Caribbean, the Bahamas, New England, Nova Scotia, and Europe.

—D. E. Powell

TRADE LISTS

The Commercial Intelligence Branch, Office of International Trade, U. S. Department of Commerce, Washington 25, D. C., has published the following mimeographed trade lists. Copies of these lists may be obtained by firms in the United States from that Office or from Department of Commerce field offices at \$1.00 per list:

Canners—Meat, Fish, Vegetable, and Milk Products—Western Germany and Berlin, (January 1953). Lists names and addresses of canners. Size of firm and types of products packed are indicated. Fish canners are included.

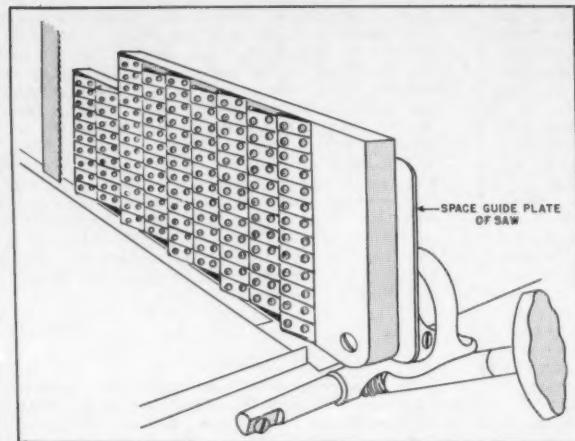
Boat and Ship Builders, Repairers, and Chandlers—Morocco (January 1953). Lists names and addresses of boat builders and repairers, and ship chandlers. Size and type of vessels handled and services offered by each firm are shown.



"NO-SMEAR" MEAT SAWING MAY BE APPLIED TO FROZEN FISH

A "smear remover" for use in cutting meat with a power saw was recently developed by the U. S. Department of Agriculture. It eliminates the bothersome and time-consuming task of removing the "smear" by hand, and might be of use to fish dealers who steak large quantities of frozen fish.

"Smear" is bone dust and fat particles left on meat cuts by power saws. An objectionable "sawdust," comparable to this "smear," occurs when large quantities of salmon, swordfish, or other fish are steaked. This "smear" or "sawdust" detracts from the appearance of the cuts and can contribute to bacterial growth.



SMEAR REMOVER MOUNTED ON SPACE GUIDE PLATE OF POWER SAW.

of the outer surface of the meat rubs against the attachment as the meat is pushed past the saw. For many meat cuts this is said to take no more time than power sawing without the "smear remover." Properly used, the attachment leaves meat cleaner than when a scraper or a cloth is used. Operators have expressed the opinion that it leaves the cut as clean as if made with a knife.

Tests in two stores indicated that the "smear remover" increased production of their cutting operations 20 to 30 percent on meat cuts requiring cleaning, and saved 3 to $4\frac{1}{2}$ man-hours weekly in an average size supermarket. It is estimated that the attachment will cost \$60 to \$75. Developers of the invention have made their rights in it available to the public on a free-use basis.

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* * * * *

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Pages 2, 3, and 4--Staff of Pacific Oceanic Fishery Investigations; p. 6--Garth I. Murphy; p. 57--Food and Agriculture Organization, Rome, Italy.

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COMMERCIAL FISHERIES REVIEW MAILING LIST BEING CIRCULARIZED

COMMERCIAL FISHERIES REVIEW



Vol. 15, No. 3

MARCH 1953

FISH and WILDLIFE SERVICE
United States Department of the Interior
Washington D.C.

Federal regulations require that all mailing lists be circularized periodically. A circularization letter dated May 15 was sent to all those on the Commercial Fisheries mailing list. (Individuals or firms who have requested their names added to the mailing list subsequent to March 1, 1953, will not receive a circularization letter and will be retained on the mailing list, unless the recipient meanwhile requests that his name be removed.)

Firms or individuals who do not return the circularization letter will be dropped from the Commercial Fisheries mailing list. The June 1953 issue will be the last one to be mailed to those in the United States who do not reply, and the August 1953 issue will be the last one for those in foreign countries. If you don't want to miss any issues of the Review, return the circularization letter promptly.

Comments or suggestions regarding the Review will be appreciated by the editors.

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